

2001, p.

B. Ross, L. Bialecka, and A. Ihnatowica: Chemistry of Coal. Warsaw: Państwowe Wydawnictwo Techniczne, 1956, 311 p. Reviewed in Roczniki Chemii, Vol 30, No 3, 1956.

ROGA, B.

Characteristics of the national resources of brown coal. Biuletyn GLOW.

p. 9 (Przeglad Cerniczy. Vol. 12, no. 7/8, July/Aug. 1956. Katowice, Poland)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2,  
February 1958

No 6 1, 65  
ROGA, B.

J. Siwicki's Technologia paliwa i wody (Technology of Fuel and Water); a book review.

p. 151 (Wiadomosci Chemiczne) Vol. 11, no. 2, Feb. 1957, Wroclaw, Poland

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

R.O.G.A,B.

3586. POLISH COAL INDUSTRY. Roga, B. (Vienna: Austrian National Committee of the World Power Conference, June 1956, "Power Today, Vol. 3", 294-296). A discussion of the development of the industry from 1945 to 1955, including production figures for coal and coke for each year. (E2703/V1). *Fuel*

ROCK, E.

Development of industries in China. p. 101. ACTA POLONICA  
POLONICA Warszawa Vol. 9, No. 4, Apr. 1956.

East European Accessions List (EEAL) Library of Congress  
Vol. 5, No. 11, August 1956.

Roga, B.

165. DEVELOPMENT OF COAL CHEMISTRY AND THE CHEMICAL UPGRADE OF COAL IN POLAND. Roga, B. (Pap. 166 E/19 to Sect. E, 5th Wld Mr Conf., Vienna, 1956, Propr., 170p.). The first part deals with the most important research work in coal chemistry and coal utilization in Poland in the last ten years and the Polish coal classification by types. In the second part some problems of the coke and gas industry of the low temperature distillation of coals are discussed. (L). *Chart*

ROGA, BLASEL

I-12

POLAND/Chemical Technology - Chemical Products and Their  
Application. Treatment of solid mineral fuels

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12843

Author : Kijewski Waclaw, Klosinski Jan, Roga Blasel  
Title : Investigations of Dry Distillation of Bituminous Coal  
in Gas Plant Furnaces.

Orig Pub : Badania nad odgazowaniem węgli plomiennych w piecach  
gazowniczych. Gaz, woda, techn. sanit., 1955, 29, No 9,  
290-297 (Polish)

Abstract : In order to increase the range of coking coal varieties,  
industrial scale experiments were carried out at a gas  
plant with charges of vertical compartment furnaces of  
the Didier design, consisting of non-sintering gas- and  
gas-bituminous varieties of coal with coking coal. Des-  
cribed are the conditions and resulting data of the  
first experiments, in which the furnace charges consisted  
of non-sintering coal of particle size 16-31.5 and 25-30  
mm.

Card 1/1

- 210 -

ROGA, B.

2261. THERMOGRAPHIC STUDY OF COALS AND BROWN COALS. Pampuch, R. and  
Roga, B. (Prace Glowne Inst. Gorn. (Concr. chief Inst. Min., Stalingrad),  
Ser. B, 1956, Komunik. 183, 15pp.). Experiments on coals and brown coals  
of different rank, cellulose, lignin, peat and xylite, showed that the  
thermographic method is suitable for investigating coking properties. It  
enabled the brown coals to be grouped according to rank and the coals  
according to their technological properties. The groups of brown coals  
corresponded with their geological ages and those of coals corresponded  
with their types in the Polish classification system. The coking process  
is divided into definite stages which occur within their characteristic  
temperature ranges. Some of the processes involved are functions of  
temperature only, others are also functions of time. Two decomposition  
reactions were distinguished in the 300 to 500°C temperature range, one from  
320 to 400°C in low rank coals, and one from 400 to 480°C, connected with  
coal plasticity, which is most intense in coking and gas-coking coals. (L).

2

P<sub>3</sub> & P<sub>4</sub> 83

RGA, B.

The process of degasification of natural solid fuel. Buletyn Glow.

p. 19 (Przeblad Gorniczy. Vol. 12, no. 10, Oct. 1956. Katowice, Poland)

Monthly Index of East European Accessions (EEAJ) LC. Vol. 7, no. 2,  
February 1958.

Roga, B.

✓ 146. TYPES OF COAL FROM DIFFERENT COAL FIELDS. Roga, B. and Wnokowska, L. (Prace Głów. Inst. Gorn. (Contr. chief Inst. Min.), Stalinogrod), 1951, Komunik. 101, 4pp.). Proximate and ultimate analyses were obtained for typical British, Belgian, U.S., Netherlands, French and Ruhr coals. Their coking properties are discussed. The Polish system of classification is explained and is applied to the foreign coals. (L).

(1)

ROGA, B.

✓ 148. CHEMICAL PROPERTIES AND CLASSIFICATION OF POLISH FLAME COALS.  
FD Rega, B. and Ihnatowicz, A. (Prace Glów. Inst. Gorn. (Contr. chief Inst. Min.,  
Stalingrad) Ser. B, 1954, Komunik. 142, 10pp.). (L).

(1)

Roga, B.

✓ 152. CHARACTERISTICS OF COALS FROM NOWA RUDA DISTRICT AND THEIR  
SUITABILITY FOR COKING. Roga, B., Sidillo, M., Kahnne, S. and Bozar, J.  
FJ (Prace Glav. Inst. Gorn. (Centr. chief Inst. Min., Stalingrad), Ser. B, 1955,  
Komunik. 170, 6pp.). (L).

(3)

Roga, Blażej

Roga, Blażej

Degassing flame coal in retort furnaces. I. Wacław Kijewski, Jan. Kłosiński, and Blażej Roga (Gł. Inst. Górnictwa, Gliwice, Poland). *Gaz, Woda i Tech. Sanit.* 29, 290-7(1955).—Expts. were made in 2 small vertical retort furnaces of the Didier-type under normal tech. conditions. The yield of products of low-temp. dry distn. for 2 kinds of coal are given. A. Kreglewski

Fuel 3

ROGA, Blazej, n.  
~~B. J. H.~~

Characteristics of primary tars from certain Polish bituminous and brown coals. Blazej Roga and Maria Ihnatorwicz (Główny Inst. Górnictwa, Szczecin, Poland). *Prace Głównego Inst. Górnictwa, Ser. B-Konun.* 161; 10 pp. (1954) (English summary). Properties of primary tars obtained in Lurgi-Kulczyński tunnel ovens (I) and in Lurgi shaft ovens (II) are evaluated. The primary tars were distilled in 50-kg. batches. Sp. gr. of primary tars and oils obtained from bituminous coal was 0.990-1.057 and from brown coal was 0.936-1.005. Insol. part of these tars and oils in benzene was 0.04-0.75%; the content of acidic compds. was 23-58% by vol. The primary tars obtained from bituminous coal contained 0.8-2.7% of paraffin wax and from brown coal 2.0-14.4%. The yield of gasoline fractions boiling below 200° was from primary tars from bituminous coal obtained in I 8.4-10.6% and in II 3.1-4.7%; primary tars from brown coals obtained from I contained 5.8-8.3% and from II 2.7% of such gasoline. The yield of phenols and cresols did not depend on the method of distn. Primary tar obtained from II gave residue 39-51% while from I 30-42% (softening point of the residue was 70°).  
F. J. Hendel

Roga, B

Types of Polish coals from the modern viewpoint on coal  
structure. B. Roga, L. Więkowski, and J. Leśniak.  
*Prace Głównego Inst. Górnictwa, Ser. B, Komun.* No. 152,  
16 pp. (1951) (English summary). —Proximate and ultimate  
analyses of 9 peats, 4 brown, and 47 bituminous coals are  
given. True d. (Franklin method, *C.A.* 42, 7003i) and  
structural analysis (van Krevelen method, *C.A.* 47, 9591f)  
are included. R. S. Lubomirski

Roga, B.

✓ Production of metallurgical coke from weakly-coking and noncoking coals. Julian Nadzakiewicz and Blażej Roga (Główny Inst., Górnictwa, Stalnogród, Poland). *Prace Głównego Inst. Górnictwa, Ser. B, Kowen.* No. 172; 11 pp. (1965) (English summary). —Owing to scarcity of coking coals weakly-coking and even noncoking coals should be utilized for the rapidly growing demand of the metal industry. A review of processes for the production of metallurgical coke from such raw materials is given: 20 references.

E.J. Hendel

Roga-Biały E-2

Characteristics of coals from Nowa Ruda district and their suitability for coking process. Biały Roga, M. Siedlisko, Sz. Kalina, and J. Bożar (Główny Inst. Górnictwa, Stalinogród, Poland). *Prace Głównego Inst. Górnictwa*, Ser. B, Komun. No. 170, 8 pp. (1955) (English summary).  
Coals from shafts designated P and B and from the colliery S of the Nowa Ruda district in Poland are suitable for prep. mixts. from which coke is made. Owing to the above coals, the obtained coke is mechanically strong and resists attrition. However, the coking mixts. must not contain more than 25% of the above coals. F. J. Hendel

RCCA, Blazej, prof., dr., inz.; SIEMIENIEWSKA, Teresa, mgr., inz., st., asystent

Research on the specific surface coals resulting from the depth of  
seam of their deposition in mines. Chemia Wroclaw no. 7:21-39. '61

1. Katedra Technologii Chemicznej Węgla, Politechnika, Wrocław (for  
Blazej).
2. Katedra Chemii i Technologii Węgla Brunatnego, Politechnika,  
Wrocław (for Siemieniewska).

ROGA, BLAŻEJ

Roga, Blażej. Analiza paliw stałych. Katowice, Państwowe Wydawn. Techniczne, 1952, 495 p. (Analysis of solid fuels. Illus., diagrs, name and subject indexes)

SC: East European, IC Vol. 2, No. 12, Dec. 1953

ROGA, Blazej

Chemical Abst.  
Vol. 48 No. 3  
Feb. 10, 1954  
Fuels and Carbonisation Products

Grzegorz, Witold: Analiza paliw stałych. Katowice: Państwowe Wydawn. Tech. 1952. 466 pp.

COUNTRY	:	POLAND
CATEGORY	:	Chemical Technology. Chemical Products and Their Uses. Part 3. Processing of Solid <sup>**</sup>
ABS. JOUR.	:	RZhKhim., No. 1 1960, No. 2361
AUTHOR	:	Roca, B.; Ihnatowicz, A.; Woelowska, M. <sup>**</sup>
INST.	:	Main Institute of Mining
TITLE	:	Study of Boron Content in Polish Coals
ORIG. PUB.	:	Prace Glowne Inst. gorn., 1958, B, No 212, 7 s., tabl.
ABSTRACT	:	The B content in Polish coals (C) of different degrees of metamorphism was determined by spectrographic and spectrophotometric methods. It was established that the enrichment of C in difficult media and conditions, excluding secondary contamination, leads to a decrease
<sup>**</sup> Fossil Fuels		
<sup>**</sup> Ihnatowicz, M.		
CAPS:	1/2	

ROGA, Blazej, prof.,dr.,inz.; TOMKOW, Kazimierz, mgr.,inz.

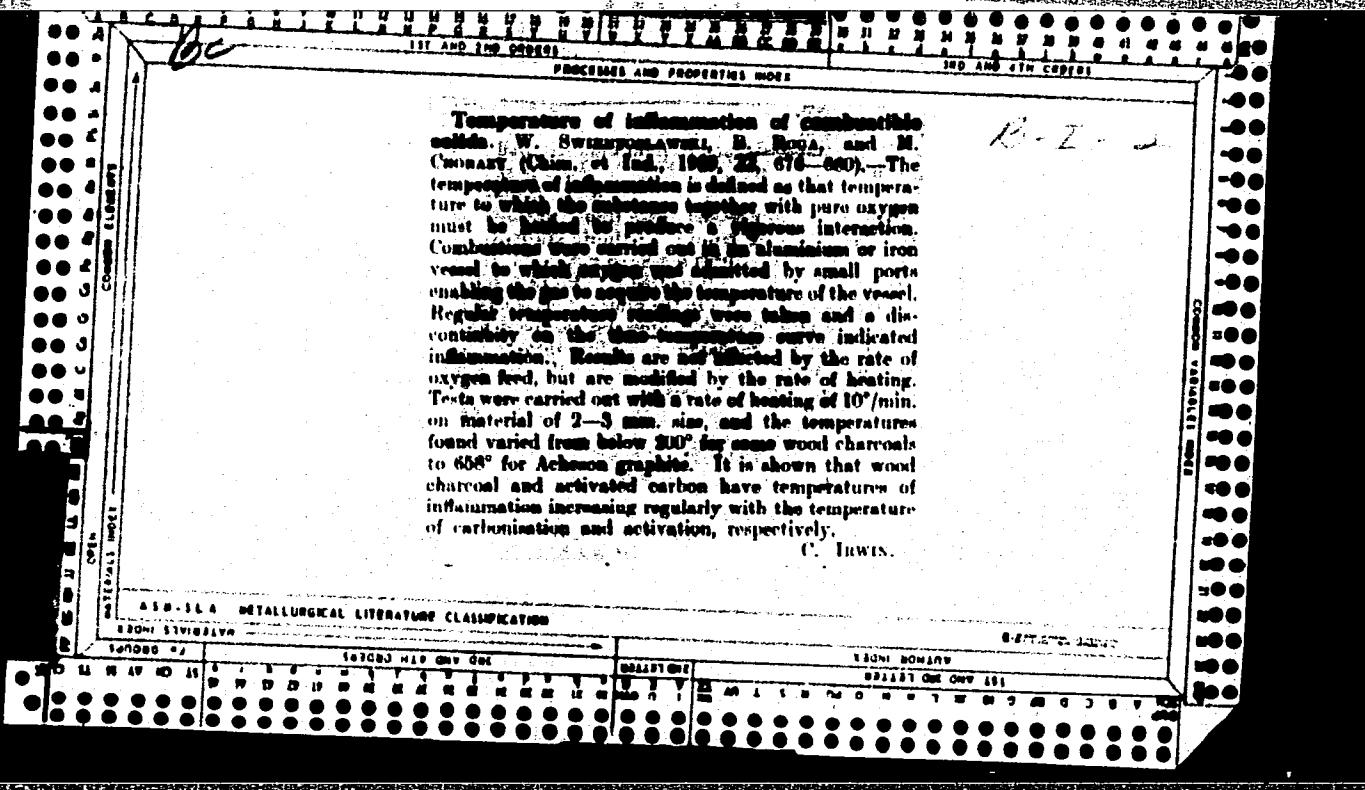
Classification of brown coal according to types. Przegl gorn 17  
no.7/8:355-359 Jl-Ag '61.

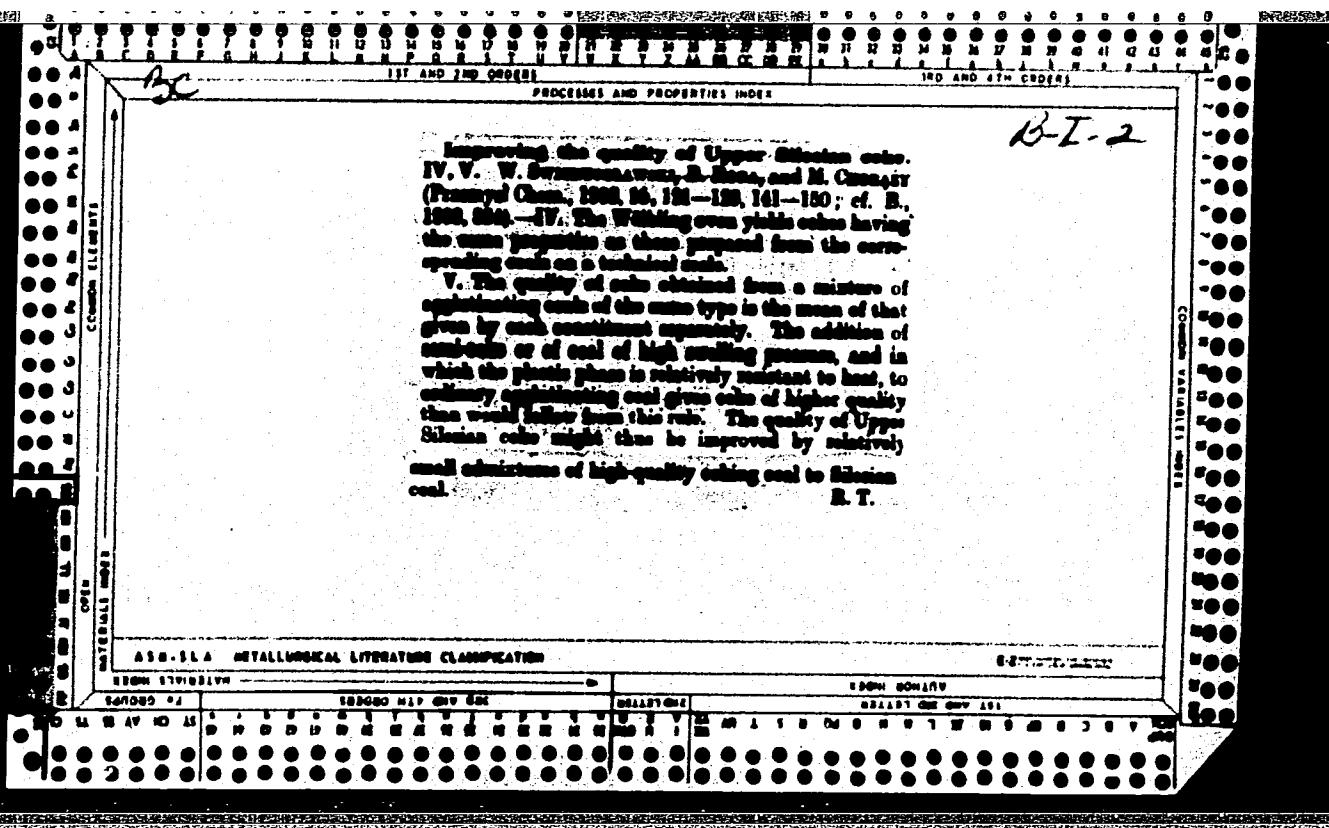
ROGA, Blazej

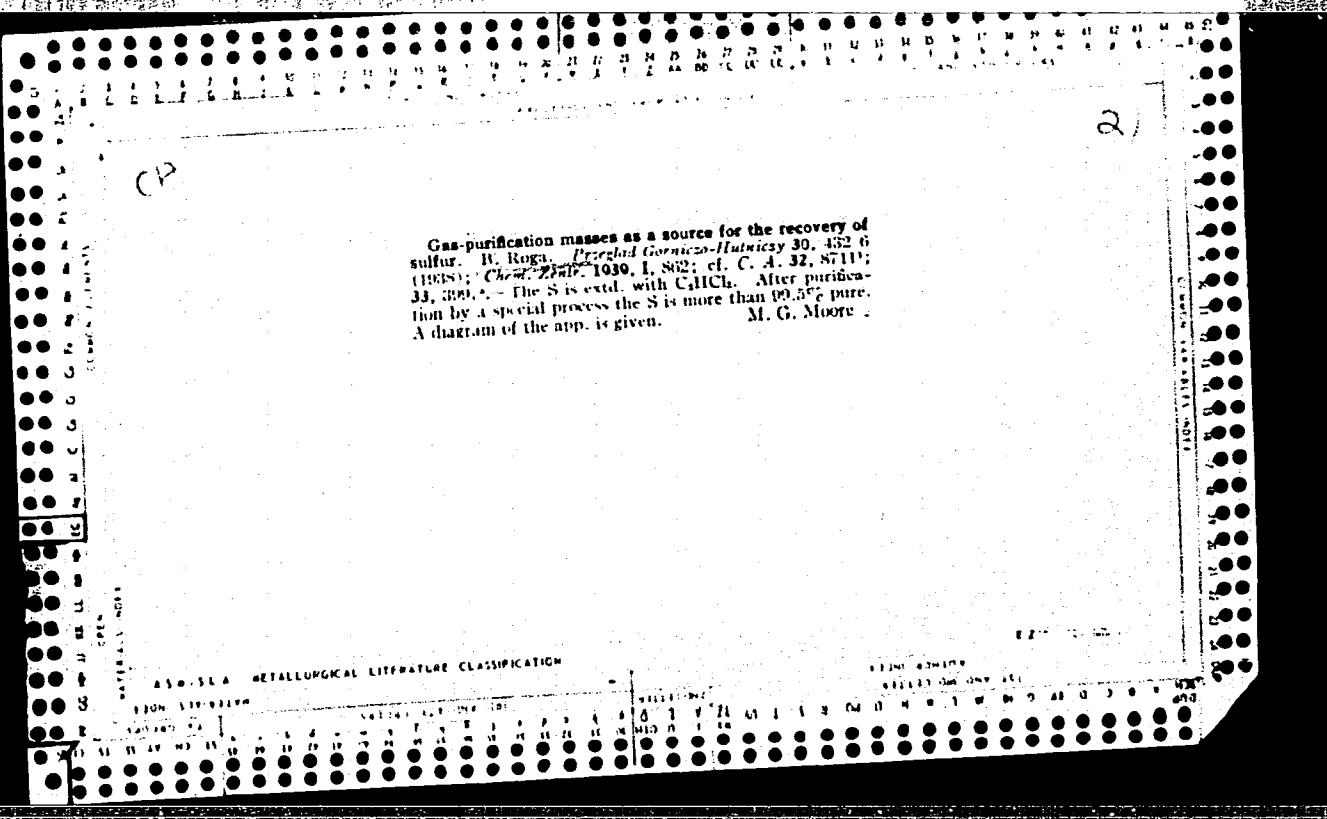
Wood tar, its properties and uses. Jerzy Kowalski and Blazej Roga (Inst. Weglowy, Zaklad Chem. Przerobki, Katowice, Poland). Biul. Inst. Weglow. (Katowice), Komun. No. 62, 39 pp. (1950) (English summary).-- A detailed description is given of the phys. and chem. properties of tar produced by the low-temp. carbonization of beech wood, and research on the chem. constituents is described. Contrary to other investigations, the presence of both naphthalene (and higher aromatics) and paraffin wax could not be confirmed. Besides the already known acids,  $C_7H_{14}O_2$ ,  $C_8H_{16}O_2$  and  $C_9H_{18}O_2$  were found among the fatty acids. Differentiation between phenols and acids was not definite because of the existence of compounds bearing groups specific both to phenols and acids. The higher  $O_2$ -contg. constituents are of complex structure and have carboxylic groups or their anhydrides in the free or bound state. It was concluded that wood tar is very susceptible to high temps. and decomposes more rapidly and at lower temps. ( $150^\circ$  and above) than do other tars obtained by low-temp. carbonization, such as tars from brown or bituminous coals. This susceptibility is characteristic for all constituents, including pitch. Products of decompn. are gas ( $CO_2$ ), water, low-boiling ketones and alcohols, and pitch or coke. Destructive-distn. methods and data and protective measures for combating corrosion are discussed. The design and operation of the distn. plant at Zdziewzowice are described, including the properties and uses of the products. Details are given of the oxidation of tar products, and the production of black varnishes and emulsified lubricating greases. A new method for plasticizing wood-tar pitch is reported.

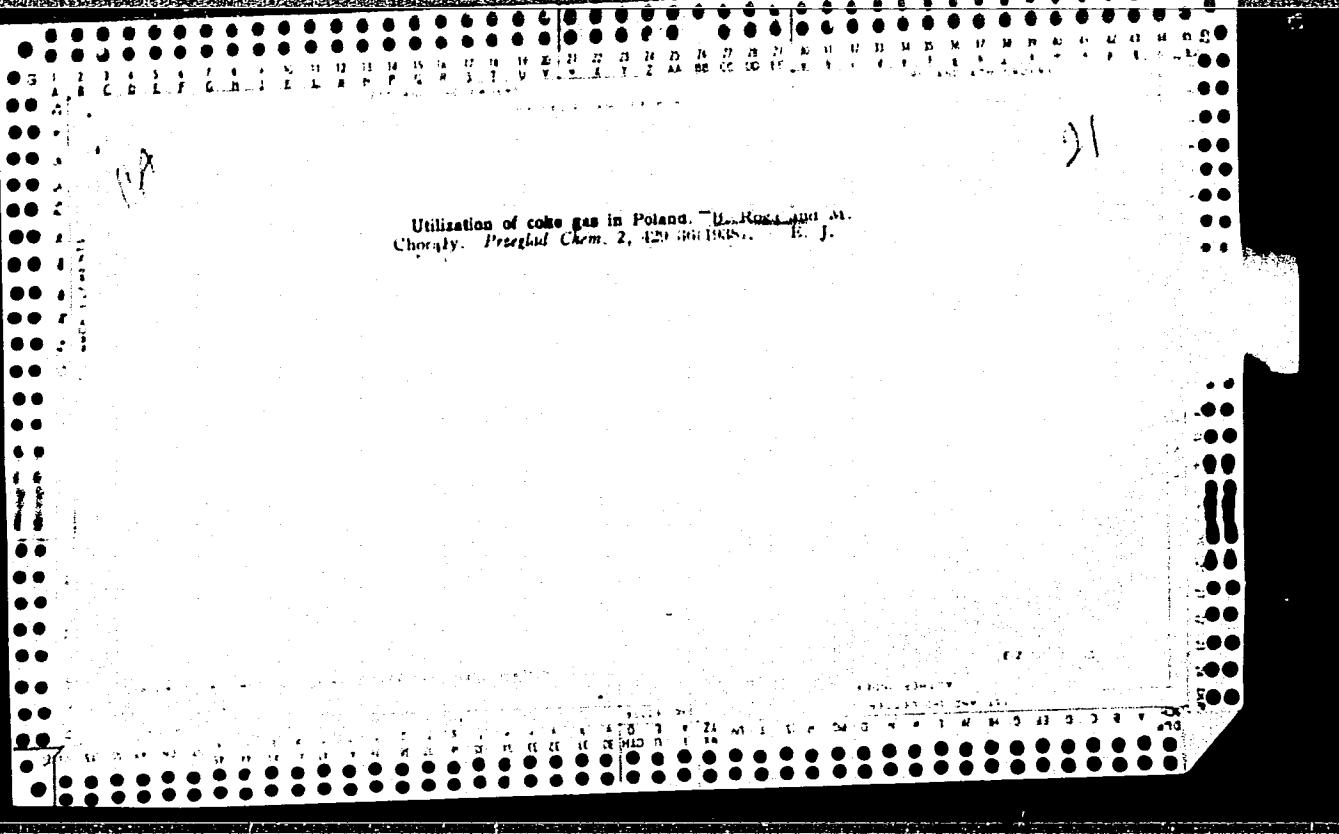
W. E. Ball

ROCA, B.,  
SWIENTOSLAWSKI, W., (Przemysl Chem., 1933, 17, 25-33)

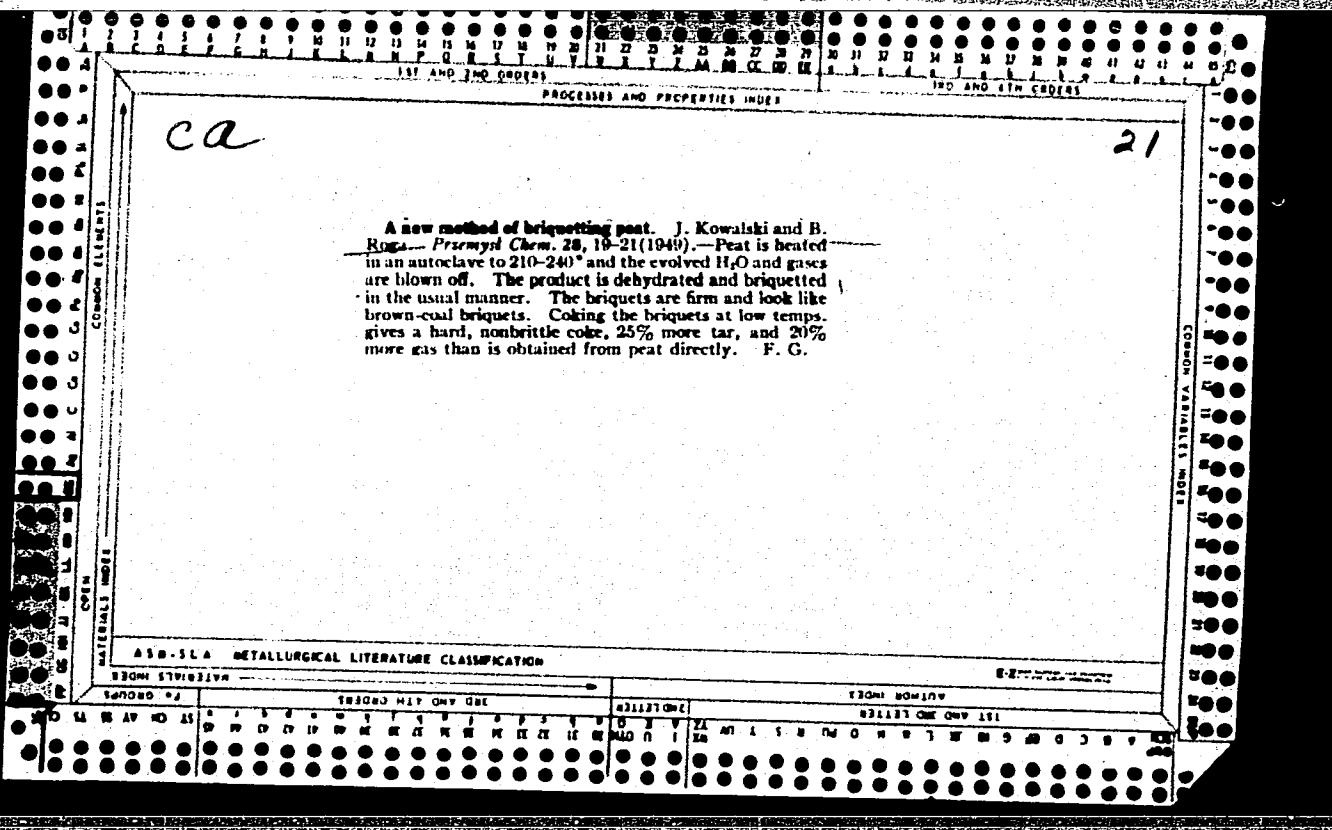








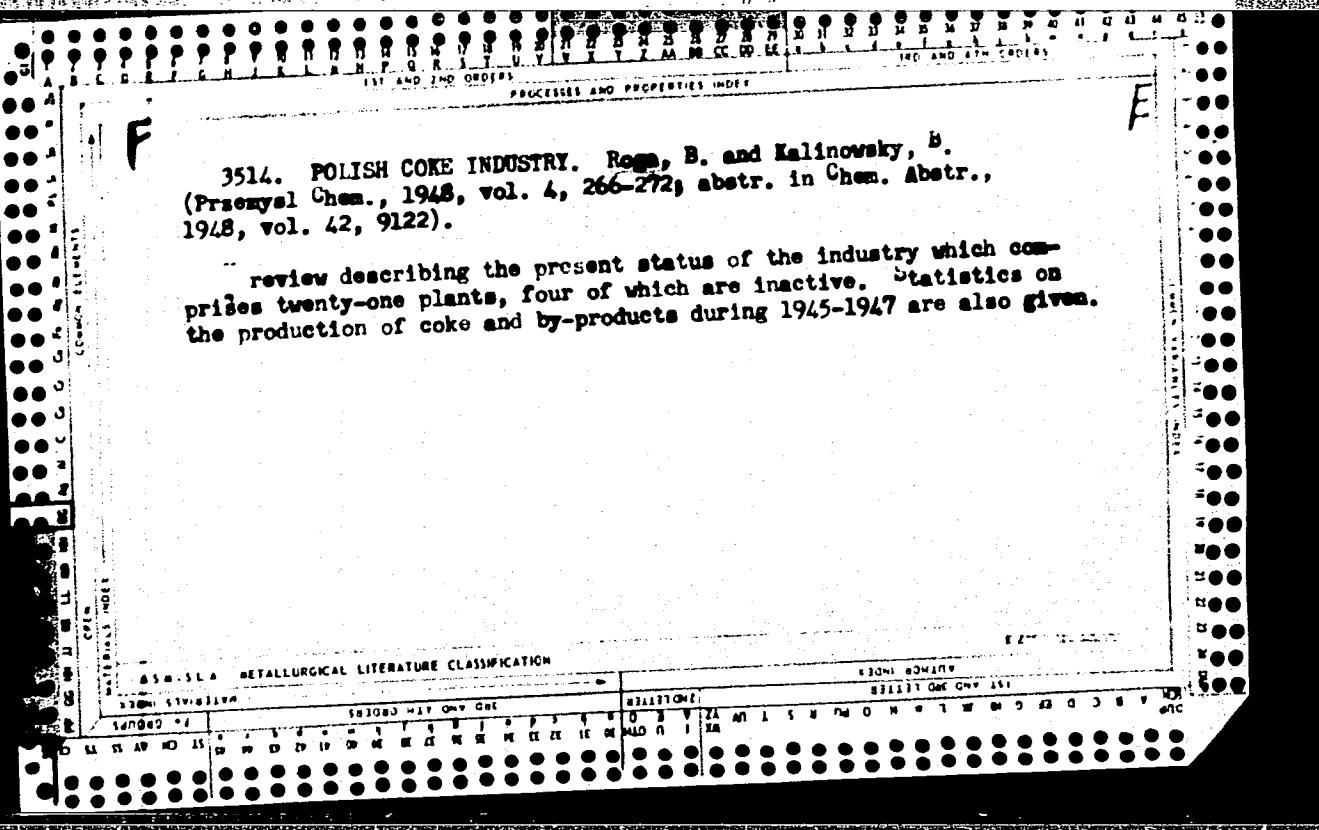
**ON THE IMPROVEMENT OF THE QUALITY OF COKE IN POLAND**  
B. Roga. (Fourth World Power Conference, London, 1950,  
Section B3, Paper No. 4). The author discusses the importance of those  
methods of testing coking coals which are intended to indicate  
their behaviour at high temperature, and describes in particular  
a Polish test for determining the agglutinating value. He  
considers methods of improving the quality of the coke and the  
economics of the process.—R. A. R.



17  
1970. ANALYSIS OF HUMIC AND DETERMINATION OF HUMIC ACID CURVES IN  
KALIFERZI BETH D., JAGODA, AND TURATOWICZ, M. (Kaliszow: Techn. Univ.  
Inst. Gorni, (Inst. Gorni Inst. Min.), 1951, Krakow, 12, 12pp.).  
The L. Gorin, (Inst. Gorni Inst. Min.), 1951, Krakow, 12, 12pp.).  
number of Polish and foreign coals, one vitrinite and one durain, were  
examined by the Kremann method. Their humic acid curves were determined,  
and the fractions in humic acid as a function of coal oxidation temperature.

2044. PHYSICOCHEMICAL PROPERTIES OF GAS BLACKS. Rogo, F. and Szuba, A. (Przemysl Chem. (Chem. Ind.), 1949, vol. 5, (28), 357-364; abstr. in Chem. Abstr., 1951, vol. 45, 10556). The properties of a number Polish gas blacks were investigated and an attempt was made to correlate the data with tests carried out on a number of prepared rubber samples containing gas blacks. Physicochemical data such as adsorptive capacity, heat of wetting, ignition point, and activity can be used in production control as well as in carrying out a rough selection of gas blacks for use in rubber mixtures.

C.A.

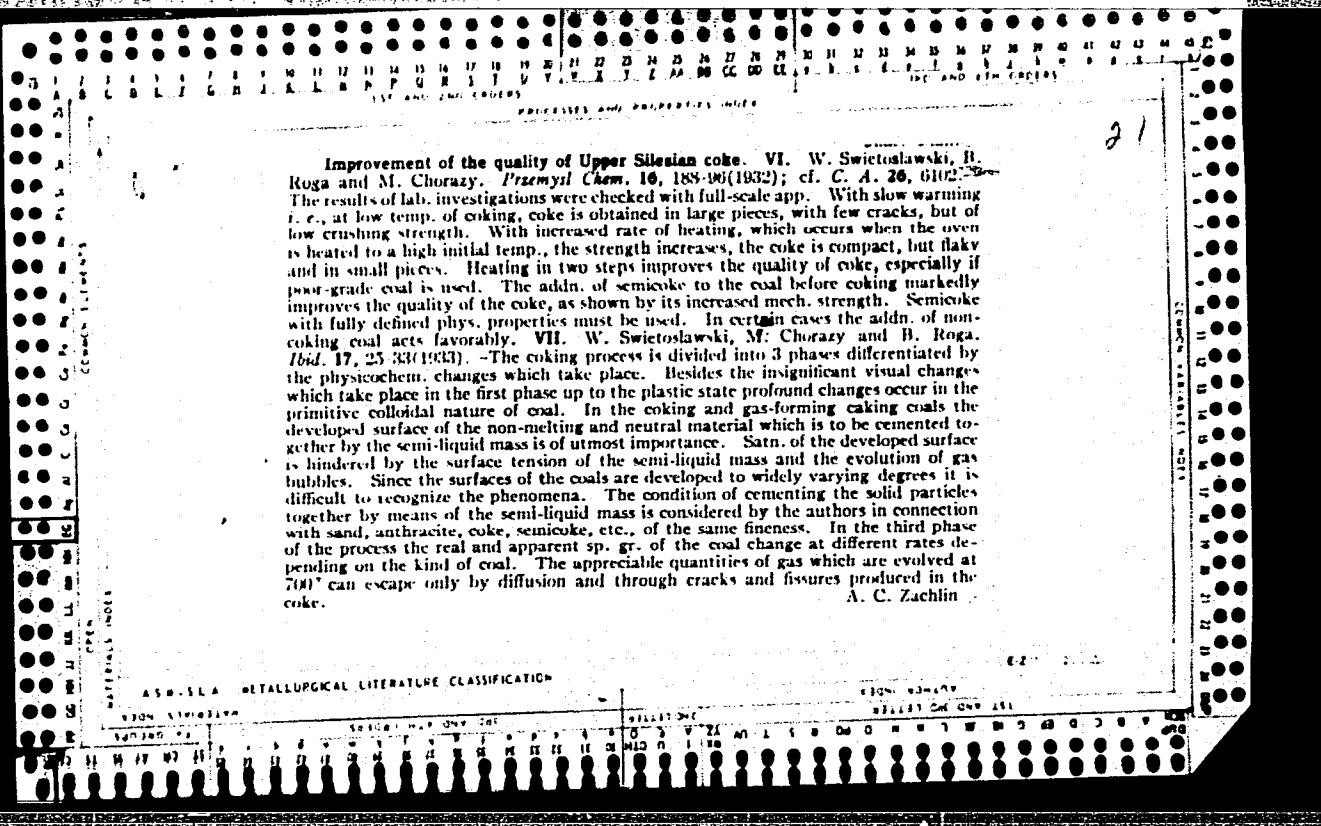


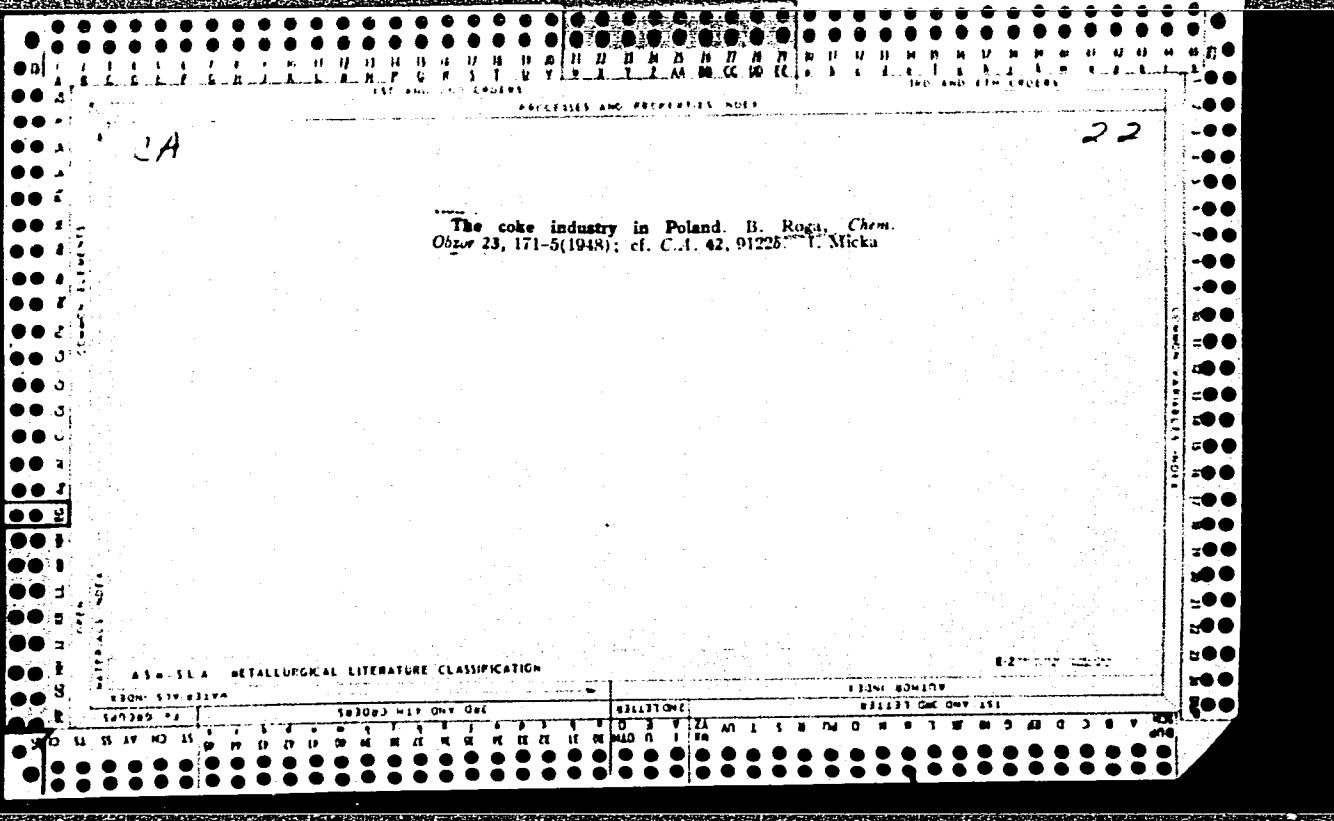
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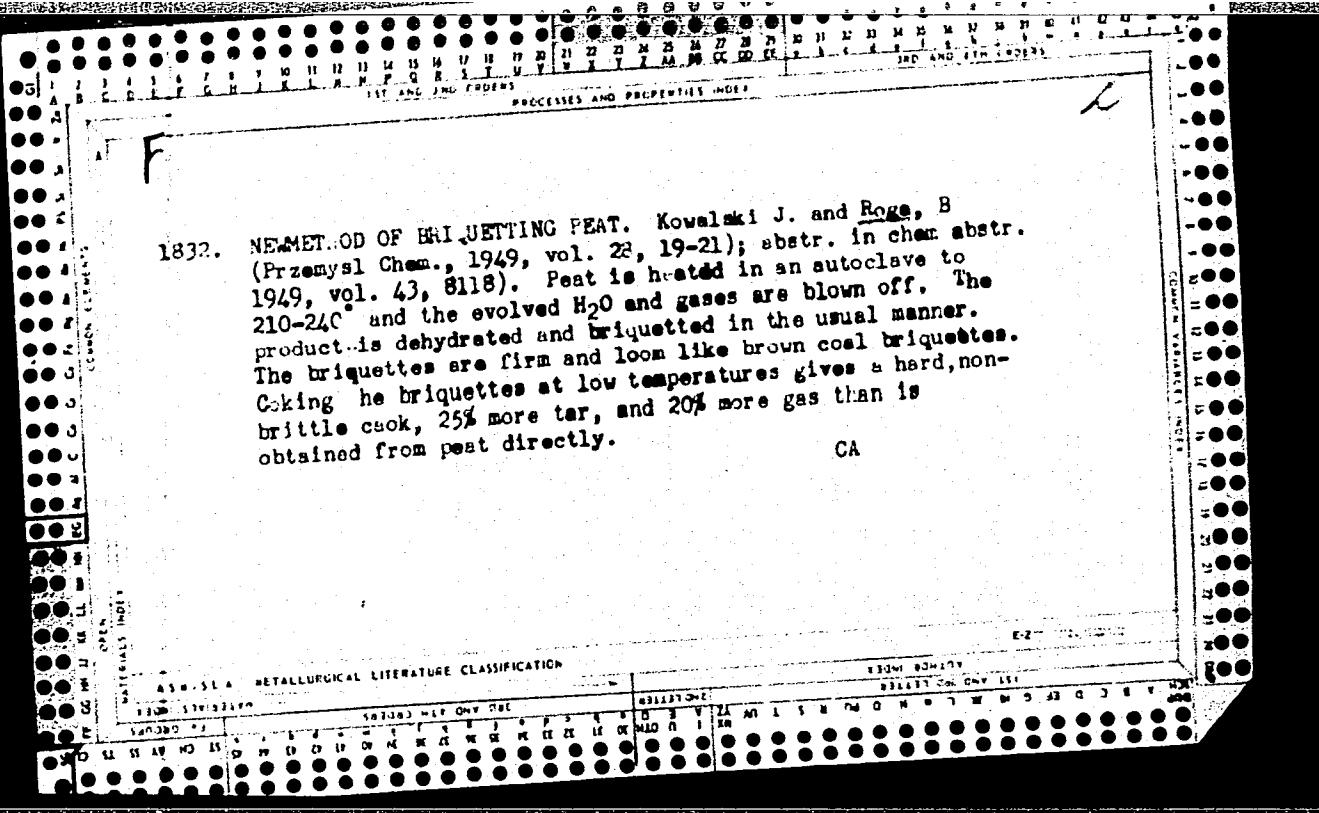
21

Briquetting of coke and semicoke powders with coal as the binder. II. W. SWITKOWIAWSKI, H. RODA, AND M. CHMORAK. *Precovol Chem.* 13, 403-72 (1929); cf. U.S. 23, 2932. The higher the coking properties of coal the better it acts as a binder. The nature of the semicoke, depending on whether it came from a coking or a non-coking coal, plays a minor but significant part in briquetting. A min. of 30% coal dust is necessary to produce mechanically strong briquets. The temp. to which the mixt. of coal dust with coke or semicoke dust must be heated before pressing varies between 390° and 440°, depending on the coal dust used as the binder. A pressure of 200-300 kg./sq. cm. is sufficient to produce good briquets. A résumé of over 27 patents on briquetting compiled from international sources is given. A. C. Z.

ASIA-METALLURGICAL LITERATURE CLASSIFICATION







B. abs

131-2 Salts, and Gasoline  
Fuels.

• Basic importance of the oilseed by-products industry. B. Ross.  
(Farm. Chem., 1948, 67, 250-262).—An essay. R. TRUSCOT.

B-II-7

**Physical-chemical studies of different types of coking coals.** B. KOSA (Przemysl Chem., 1951, 15, 221—224, 305—316, 346—379).—The coking properties of coal depend on its coking power, its ability to assume

the plastic state, its swelling pressure, the cause of evolution of gas, and the thermosensitivity of substances responsible for caking. Caking gas coals are unsuitable for coke production owing to the complete absence of swelling pressure rendering impossible sufficient impregnation of the whole mass of coal in the oven. A method for the determination of the caking power of coal has been elaborated, depending on the heating of a mixture of coal with anthracene under constant pressure. The caking properties of vitrines and durans depend on the type of coal from which they originate, but are more pronounced for durans than for vitrines taken from the same area. Durans have no caking properties, do not swell on heating, and do not assume the plastic state. The caking index of a coal, using various inert carriers, depends both on the nature and on the development of the structure of the element. The biomass methods of testing gas coals, to which applications in fact, are considerably less suitable than are the methods of testing the caking properties of typical coking coal, give a false impression of the evolution of gas and the degree of the power of plasticity, but also during the experiments carried out, in which samples from different types of caking coals. The results and known fact in our opinion from caking gas coals are to a great extent due to the following reasons:

AIR-1A METALLURGICAL LITERATURE CLASSIFICATION

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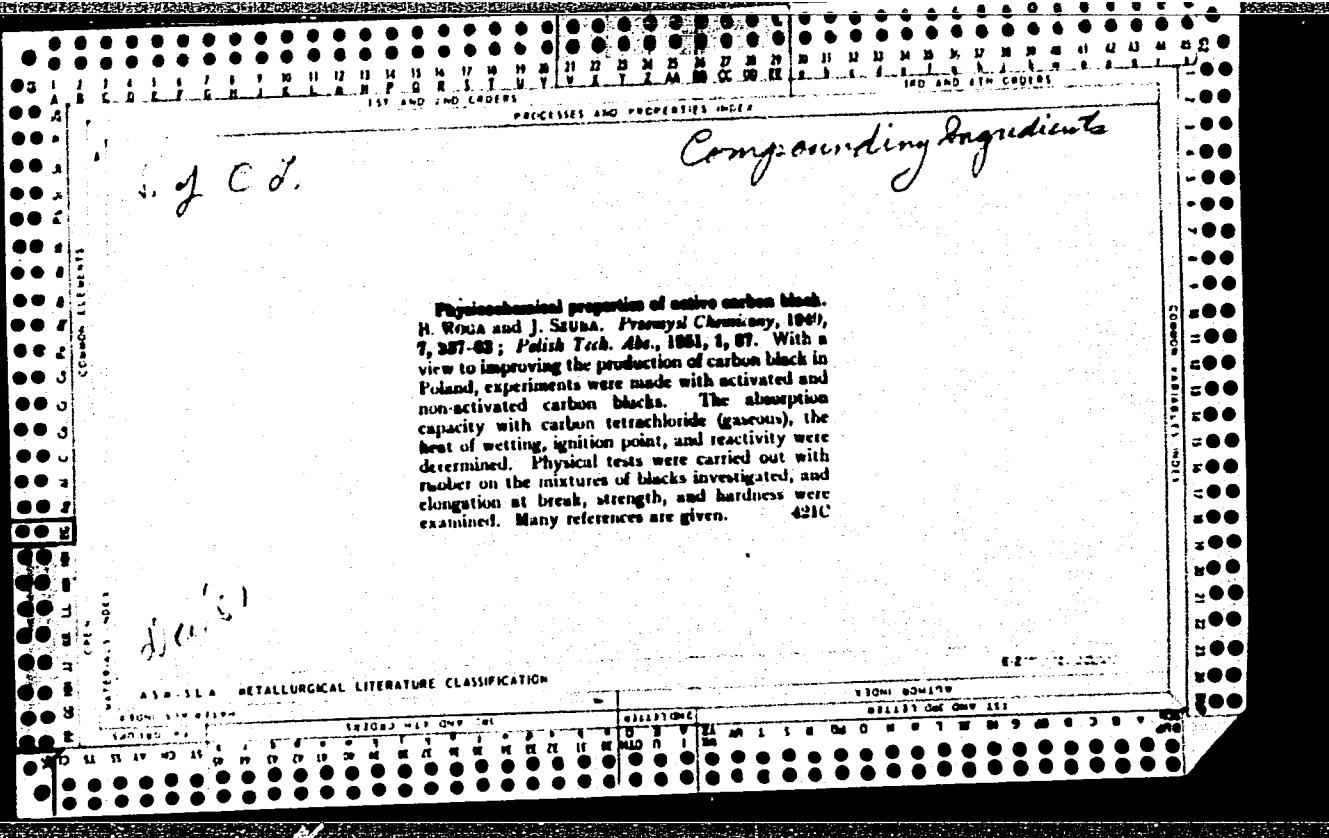
**APPROVED FOR RELEASE: Tuesday, August 01, 2000**

CIA-RDP86-00513R0014450

22

CA

**Physicochemical properties of gas blacks.** B. Roga and J. Striba. *Przemysl Chem.* 5(28), 357-61 (1949).—The properties of a no. of Polish gas blacks were investigated and an attempt was made to correlate the data with tests carried out on a no. of prepd. rubber samples contg. gas black. Physicochem. data such as adsorptive capacity, heat of wetting, ignition point, and activity can be used in production control as well as in carrying out a rough selection of gas blacks for use in rubber mixts. 42 references. Frank Gonet



P.F.H.

*Chemistry & Chemical  
Technology*

552

622.83 622.798

Kowalski J., Rogo H. Binding Material as a Problem of Briquetting  
the Coal Fines.

"Lepiące -- problem brykietowania miasła węglowego". Przeglad Górnictwa, No. 1--2, 1950, pp. 18--32,3 tabs.

Pitch should be used as a raw material for production of liquid fuels (hydrogenation). Critical review of methods (and patents): briquetting with binders other than pitch or without binders, applying high pressure and increased temperatures, low-temperature carbonization etc. Future trends in fuel agglomeration.

B. At.

BT-2, Solid + gaseous fuels

Brickmaking of peat. J. Kowalski and M. Koga. (Polish chem., 1969, 8, 19-31). Peat is heated at 250° in 1000 cubic cm, and the pressure is released abruptly. The semi-cooked residue is dried and compressed, to give briquettes having similar properties to those from brown coal. The cokeable gas contains  $\text{CO}_2$  48.1,  $\text{O}_2$  4.9,  $\text{CO}$  4.2,  $\text{H}_2$  19.3, methane 6.8, and  $\text{N}_2$  25.7%. R. TRUSCUE.

130. 460.

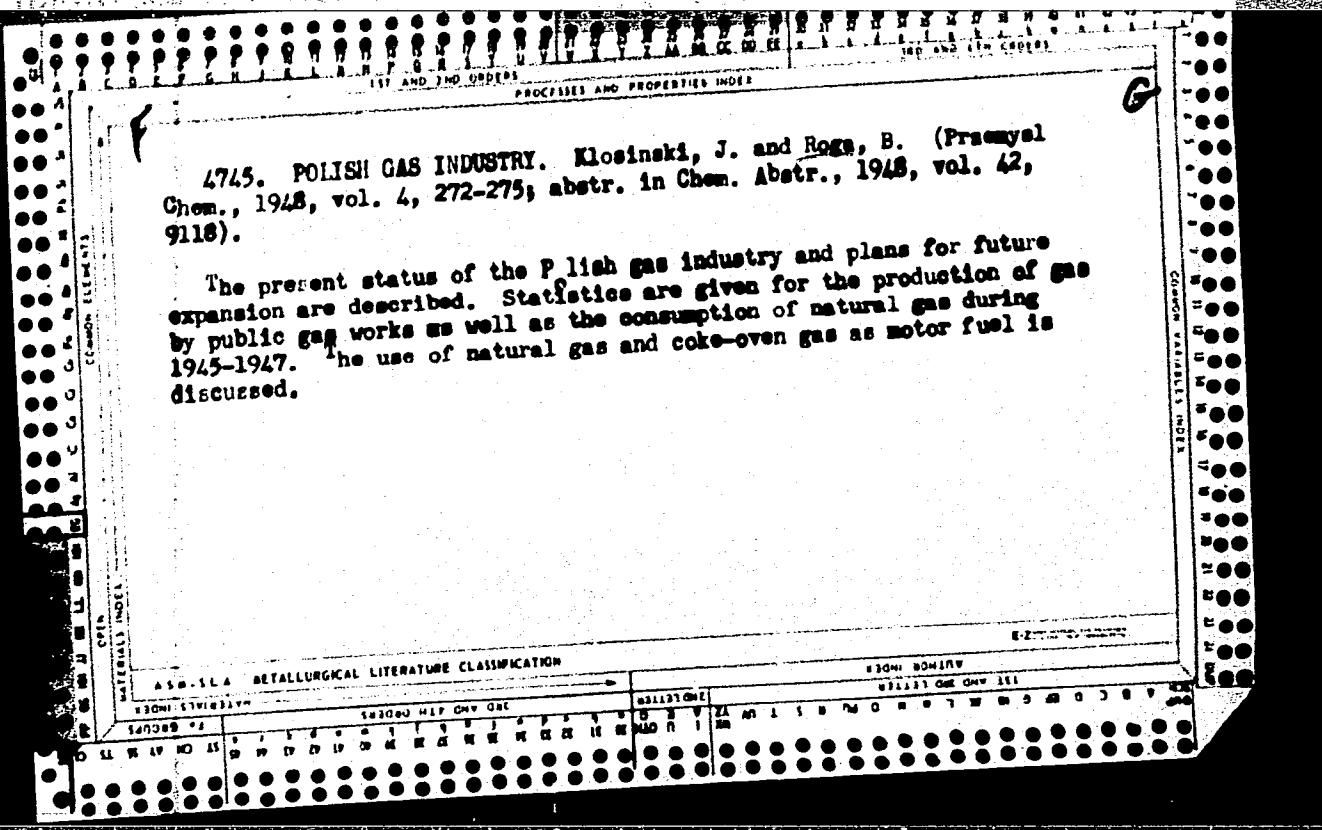
131-2 Salid & Garous  
Fuels.

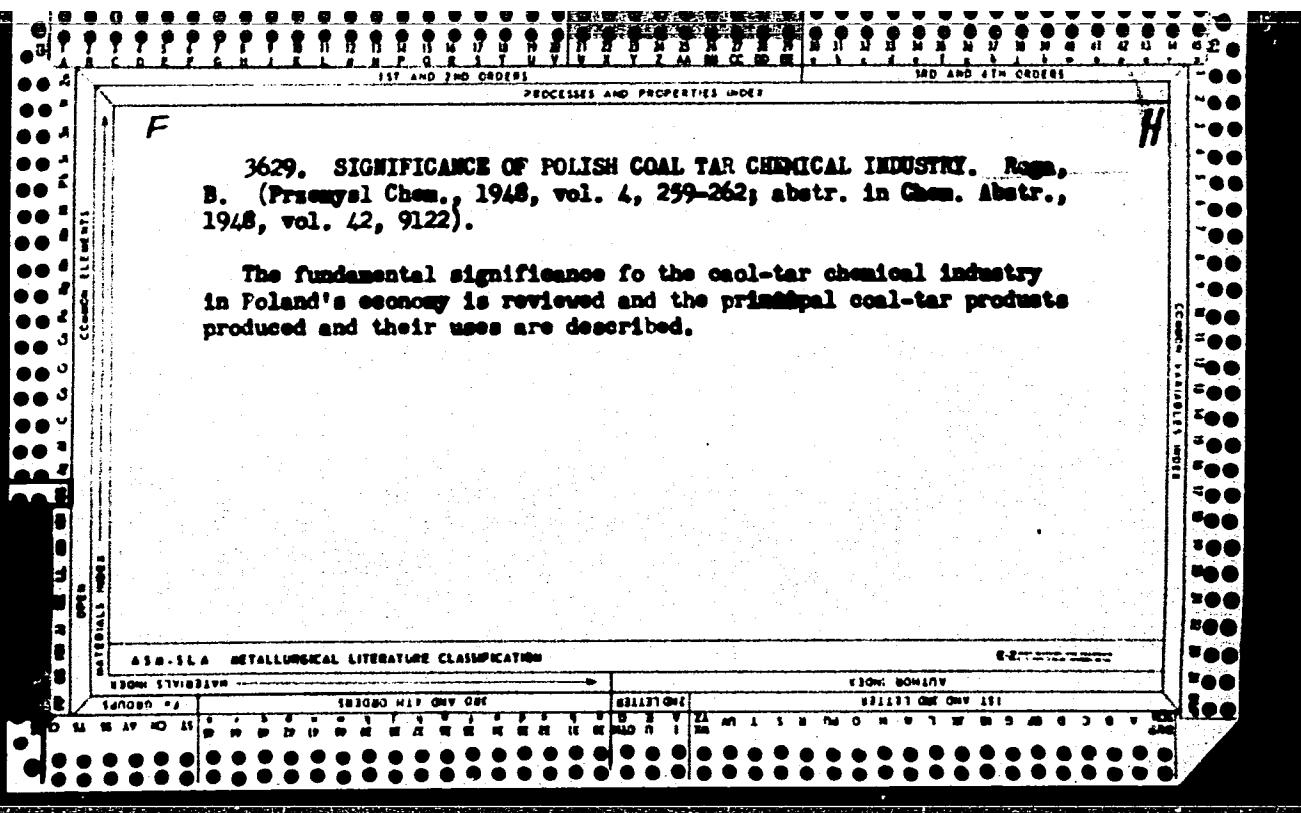
Classification problems in Poland. J. Kłosiński and H. Roga  
(Prace. Akad., 1948, 87, 272-275).—Plans and possibilities are  
documented.  
R. Tarczynski.

Buchs.

B1-2 Solid and Gaseous Fuels.

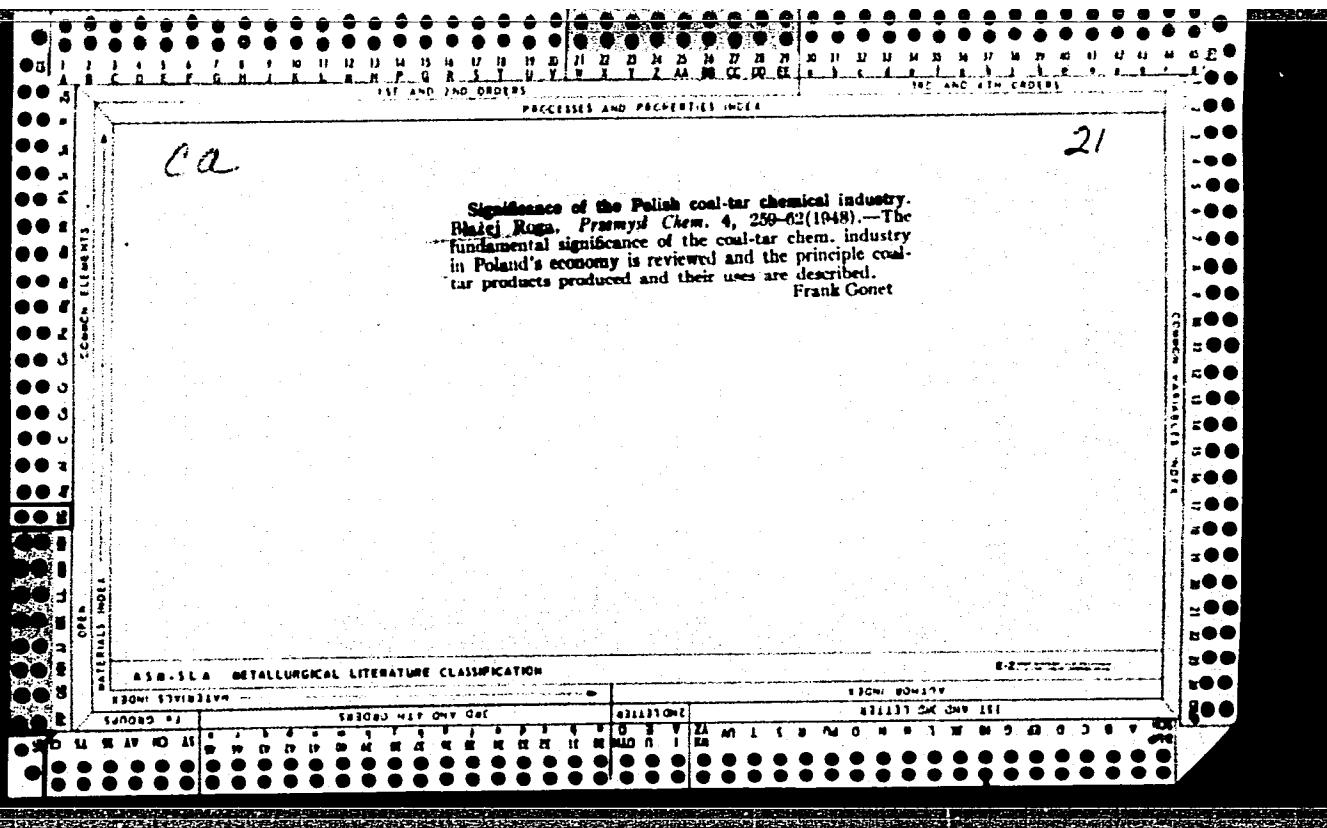
Polish oiling industry. B. Roga and B. Kalinowski (Poznań, 1948, 87, 266-272). The present situation, and a 10-year plan for development, are described. R. Truscon

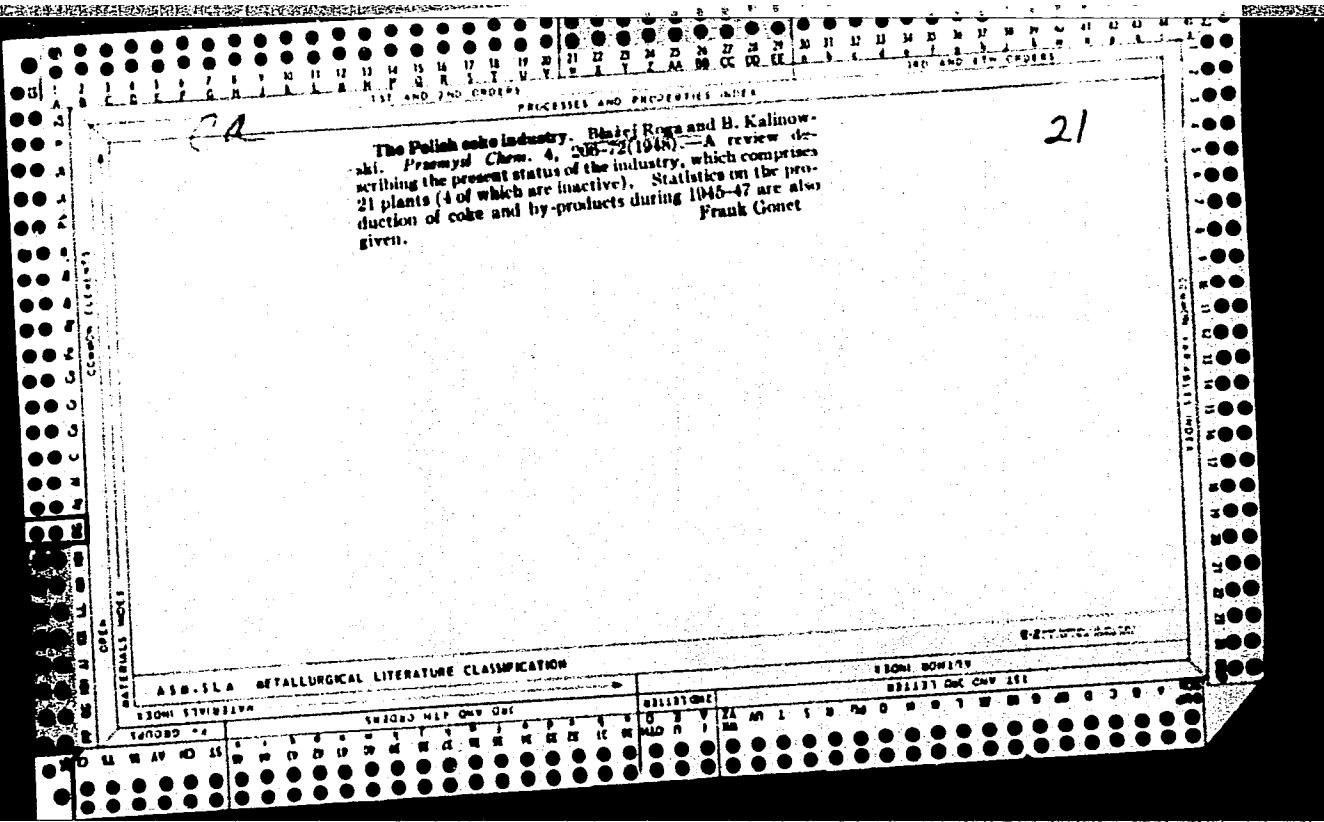


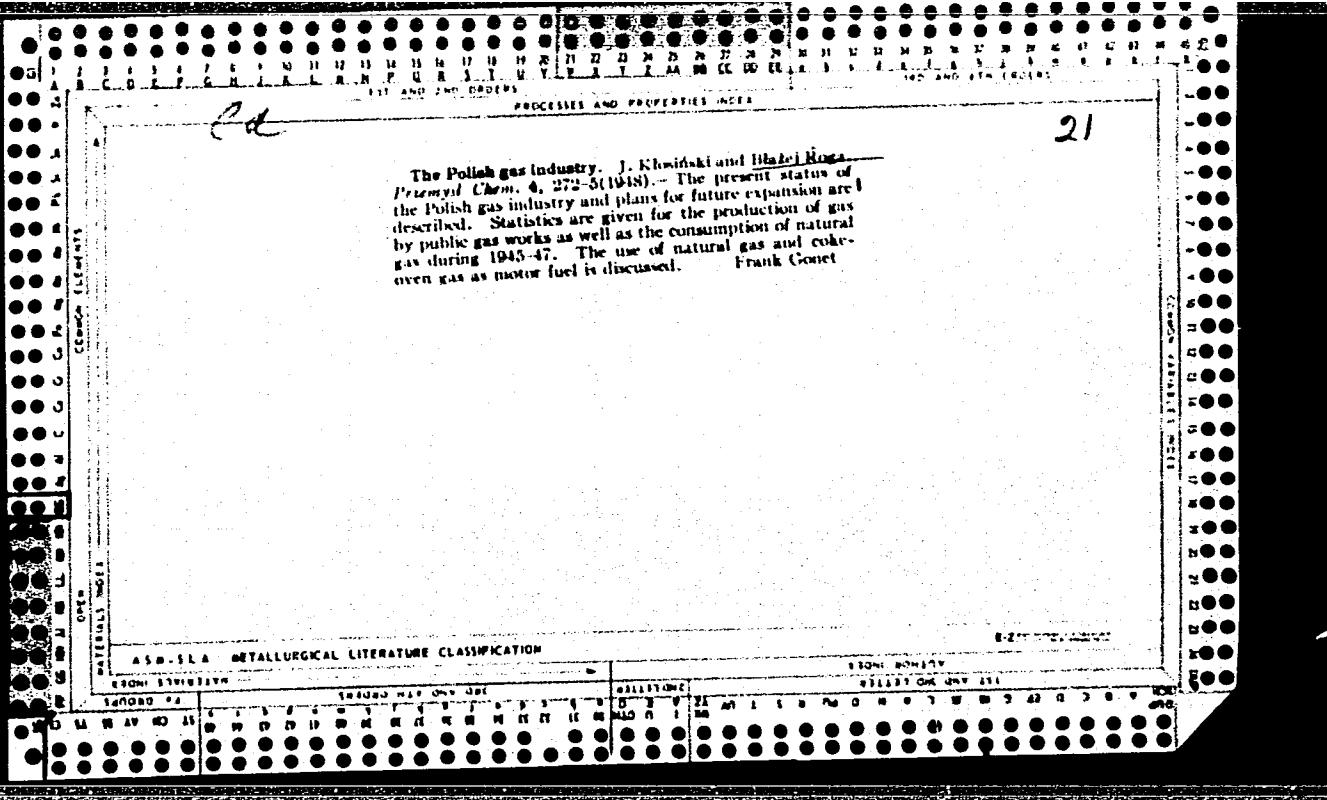


Eightieth anniversary of the Warsaw (Poland) gas works. Blażej Roga. Gaz i Woda 17, 84-90 (1957). A historical outline of the development of the Warsaw gas works since 1850. The new plant is designed to supply 1,250,000 people, and in 1930 produced 31.2 million cu. m. gas. Besides the main plant it possesses a small exptl. plant (2500 cu. m. a day) and a com. chem. division producing coal tar, benzene, phenol, ammonia and naphthalene.

JL





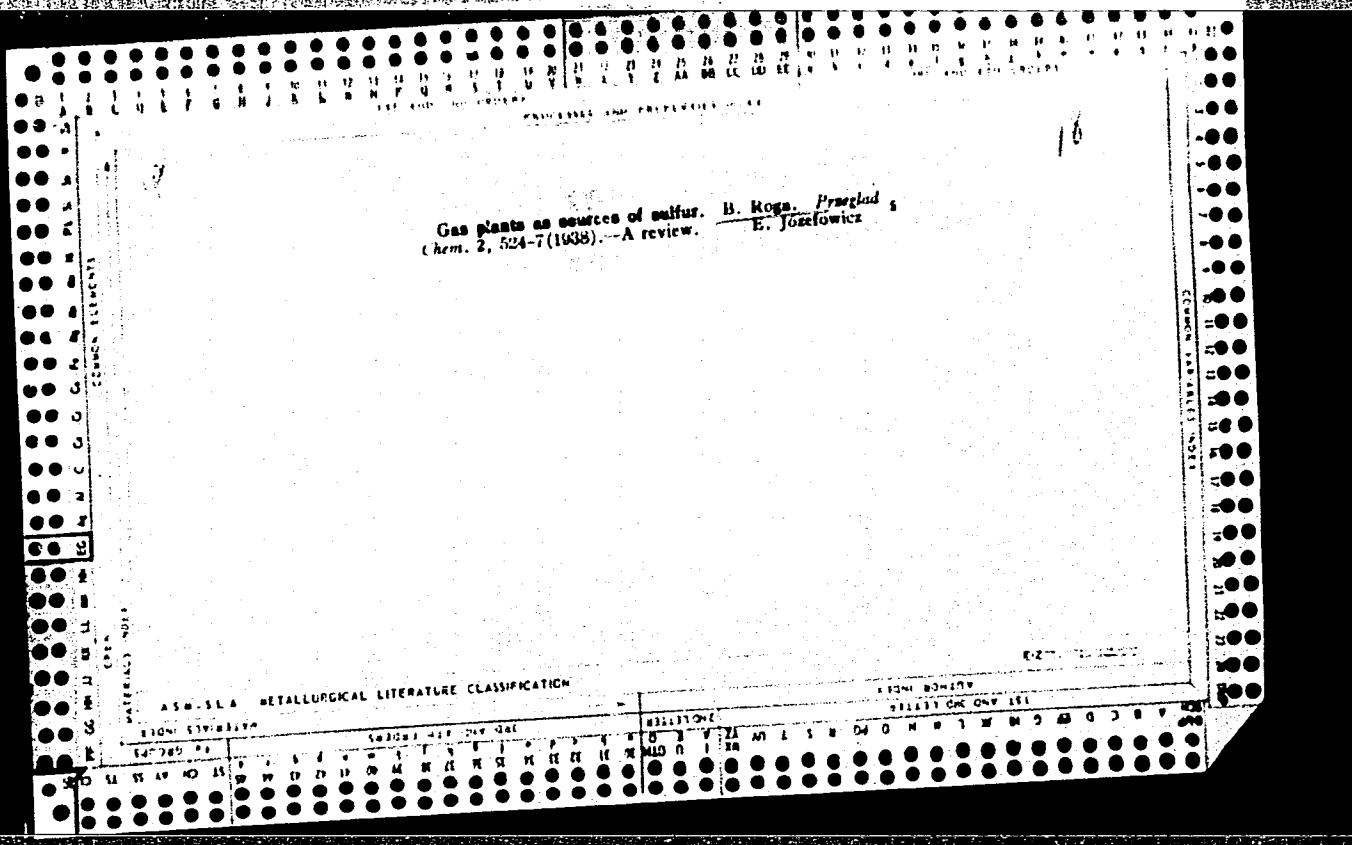


21

CP

Wood tar, its properties and uses. Jerzy Kowalski and Boleslaw Roga (Inst. Weglowy, Zaklad Chem. Przerobki, Katowice, Poland). *Biol. Inst. Wspier. (Katowice), Komun.* No. 62, 39 pp. (1950) (English summary).—A detailed description is given of the phys. and chem. properties of tar produced by the low-temp. carbonization of beech wood, and research on the chem. constituents is described. Contrary to other investigations, the presence of both naphthalene (and higher aromatics) and paraffin wax could not be confirmed. Besides the already known acids,  $C_{11}H_{18}O_3$ ,  $C_{11}H_{18}O_5$ , and  $C_{11}H_{18}O_7$  were found among the fatty acids. Differentiation between phenols and acids was not definite because of the existence of compounds bearing groups specific both to phenols and acids. The higher O-contg. constituents are of complex structure and have carboxylic groups or their anhydrides in the free or bound state. It was concluded that wood tar is very susceptible to high temps., and decomposes more rapidly and at lower temps. ( $150^{\circ}$  and above) than do other tars obtained by low-temp. carbonization, such as tars from brown or bituminous coals. This susceptibility is characteristic for all constituents, including pitch. Products of decompn. are gas ( $CO_2$ ), water, low-boiling ketones and alcohols, and pitch or coke. Destructive-distn. methods and data and protective measures for combating corrosion are discussed. The design and operation of the distn. plant at Zdziewowice are described, including the properties and uses of the products. Details are given of the oxidation of tar products, and the production of black varnishes and emulsified lubricating greases. A new method for plasticizing wood-tar pitch is reported.

W. E. Ball

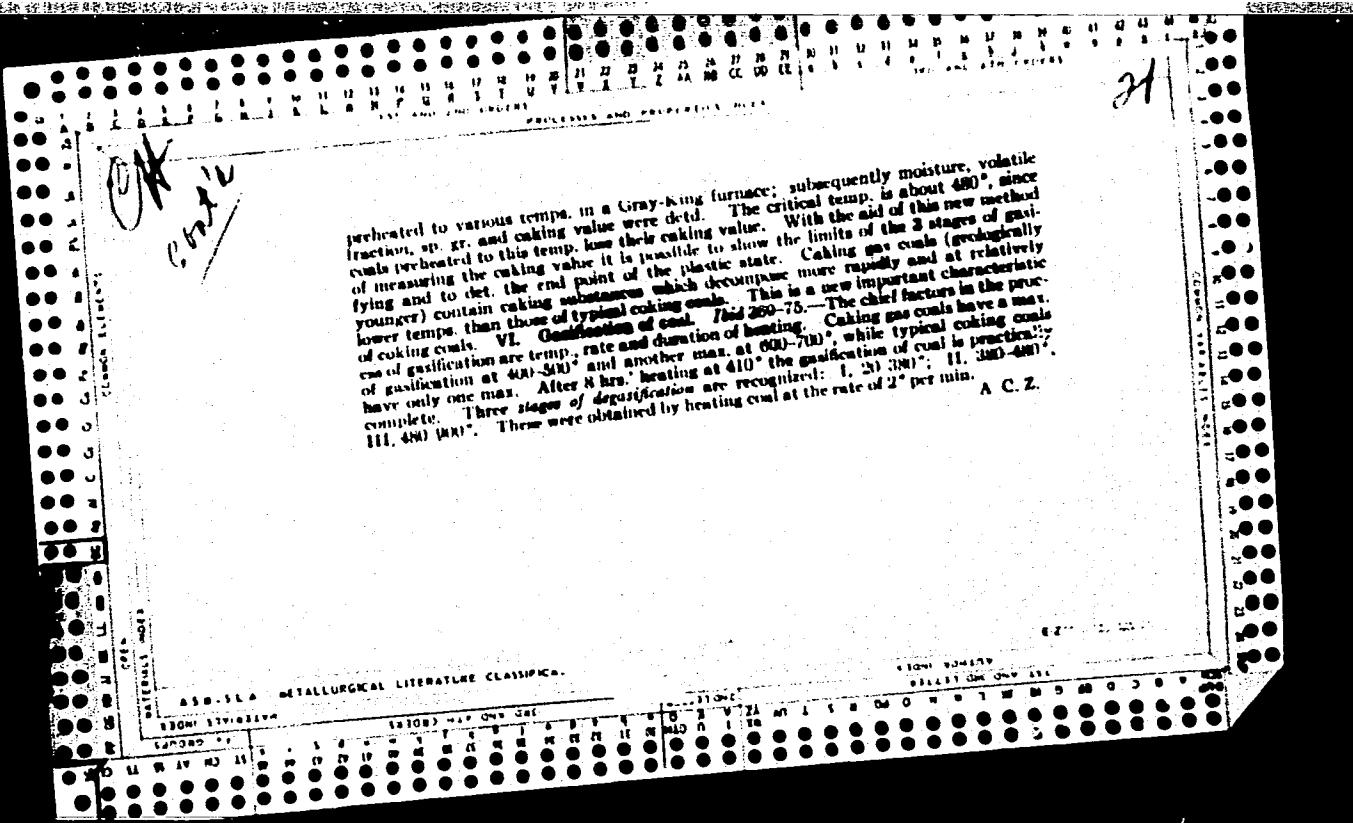


Physical examination of various types of coals. I. Introduction. RAZRI  
Rosta. *Promyслов Chém.* 15, 281-94 (1931). R. gives a review of the methods used for the study of coal, and an extended bibliography. II. Object. *Ibid* 294. III. Plastic state of coal. *Ibid* 305-13.—A modification of the Foxwell (C. A. 18, 2057) method consisted in raising the temp. of the tube 5° per min., passing the gas 50 cc. per min., and using 4 g. of coal of 1-1.5-mm. grains. The max. of the curve is the higher the greater the vol. of N passed through. Grain size of the sample affects the shape of the curve especially for the fines. Plasticity increases with the rate of heating, because under these conditions melting precedes decomposn. of bituminous substances. Gas coals and gas-flaming coals may or may not pass through the plastic state, but in coking coals without exception the plastic state occurs to a marked degree. IV. Swelling of coal. *Ibid* 314-10, 329-32.—The swelling pressure of coal was measured

by the Kurten-Koppers method. The swelling pressure depends on the plastic state of the coal on heating and on the nature of the melting and non-melting substances, which may vary both quantitatively and qualitatively in the different coals. Coking coals, and some lean and gas coals may swell. Lean anthracites, gas coal and gas-flaming coals do not swell. Contraction occurs in the third stage of coking and depends on the amount of degassing. Besides the ability to cake and become plastic a good coking coal must possess also a certain swelling pressure, because it makes possible better attn. of non-melting constituents of the mass of coal with the melting substances. V. Ability of coal to cake. *Ibid* 332-40, 362-9.—To det. the caking value of coal, mix 1 g. air-dried coal passing through a sieve of 200 openings per sq. cm. with 5-10

g. neutral substance (dried anthracite) passing through a sieve with 225/315 openings per sq. cm., lightly pack into a standard porcelain crucible, weight down with a definite load, cover with a quartz cover and heat over a standard burner, similarly to the method used for determining the volatile fraction. After it cools measure the mech. strength of the sample in a revolving drum under standard conditions. The percentage of the coke retained on 1 mm. screen is weighed before the drum test and after three 5-min. tests in the drum. The results may be expressed graphically by plotting the percentage retained on the screen against the time of the drum test, or still more simply numerically as the ratio of area under the curve to the whole area. This gives a wide scale of values ranging

from 0 for non caking coals up to theoretically 100 (practically 80) for excellent caking coals. The possible error of a determination is  $\pm 0.5$ . Values obtained by this method are compared with those of practical tests for mech. strength of coke (drum test and shatter test), the agreement is good. Strict relationship between the caking value and quality of coke exists only when other properties of the coals are similar (e.g., swelling power, volatile fraction). This method of measuring the caking value of coal is useful for evaluating fluxes for briquetting without binder (Swieteklawski, Rogo and Chomaz, C. A. 30, 1492, 5072) and also for predicting optimum conditions of such briquetting. Some relation exists between the caking value and the volatile fraction of coals, because it is possible to group certain limits of volatile fractions with more or less definite caking values. *Azur* possesses no caking value and from the viewpoint of coking is undesirable. The caking values of *metan* and *duran* vary widely, depending on the type and kind of coal. This property is exhibited much less by duran than by metan. The thermal decomposition of substances causing caking was studied on coals



ROGA, Blazej; WECLEWSKA, Maria

Influence of organic liquid vapors on the physical and chemical properties of coal. Glow inst gorn prace no.340:1-28 '64.

1. Central Mining Institute, Katowice.

ROGA, Blazej, prof. dr inz.; JASIENKO, Stefan, dr inz., adiunkt; RUSIN,  
Aleksandra, mgr inz., st. asystent; RUSIN, Emanuel, mgr inz.,  
st. asystent

Sorption of organic compound vapors by coals and their  
solid carbonization products. Chemia Wroclaw no.10:3-28  
'64.

1. Department of Chemical Technology of Coal of Wroclaw Technical  
University. Head: Prof. Roga (for Roga and Jasienko). 2. Section  
of Chemical Technology of Coal of the Central Institute of Mining,  
Katowice (for Aleksandra Rusin and Emanuel Rusin). Submitted  
March 1962.

ROGACH, A., mayor

Innovation becomes established in our life. Komm. Vooruzh. Sil  
2 no.4892-93 F '62. (MIRA 15:2)

'1. Nachal'nik otdela propagandy redaktsii gazety "Leninskoye  
znamya." (Journalism, Military)

SASON, N.S., referent; ROGACH, A.B.

"Ewka" Plant for the treatment of copper pyrites [from "Mine and Quarry Engineering" no.10, 1960]. Tsvet. met. 33 no.9:87-91 S '60. (MIRA 13:10)

(Ireland—Copper ores)

ROGACH, A.P.; RYZHIKOVA, A.P.; SLIVINSKIY, P.M.

Investigating metal quality in boilers for the refining of lead.  
TSvet. met. 31 no.11:32-36 N '58. (MIRA 11:12)

1.Zaved imeni Frunze.  
(Lead--Metallurgy)  
(Metallurgical plants--Equipment and supplies)

ROGACH, A.P.; RYZHIKOVA, A.P.; SKLYARENKO, D.V.

Effect of annealing on modified cast iron molds. Stal' 19  
(MIRA 12:1)  
no.1:92-93 Ja '59.

1. Konstantinovskiy zavod im. Frunze.  
(Annealing of metals) (Foundry machinery and supplies)

SO7/136-50-11-6/21

AUTHORS: Bogdan, A.P.  
Ryzhikova, A.P.  
Silivinskiy, P.M.

TITLE: Investigation of the Quality of Lead-Refining Kettle  
Metal (Issledovaniye kachestva metalla kotlov dlya  
refinirovaniya svintsa)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 11, pp 32-35 (USSR)

ABSTRACT: Lead-refining kettles supplied to the "Ukrtsink" Works  
by the Dnepropetrovskiy zavod metallurgicheskogo  
osorudovaniya (Dnepropetrovsk metallurgical-equipment  
Works) have proved unsatisfactory in service. The  
authors describe the investigation of the macro- and  
micro-structures and non-metallic inclusions of steel  
from 100 tonne kettles (fig.1) which are made of type  
25 steel (deoxidised with ferro-manganese, ferrosilicon  
and aluminium) and supplied without heat treatment.  
The samples covered the range 0.24% C; 0.54% - 0.70% Mn;  
0.025 - 0.04% S; 0.011 - 0.026% P; 0.19 - 0.44% Si.  
A coarse, uneven structure with non-metallic inclusions  
and other defects were revealed. The authors also

Card 1/3

SOV/136-53-11-6/21

Investigation of the Quality of Lead-Refining Kettle Metal

carried out experiments using different casting methods and a steel of about the above composition but containing 0.046% Ti, ferrotitanium being used in place of aluminium for final deoxidation: they recommend a steel of the following composition: 0.20 - 0.25% C, up to 0.25% Si, 0.4 - 0.6% Mn, over (sic) 0.04% S, not over 0.04% P, 0.03 - 0.15% Ti. The extra expense of using titanium-containing steel is recouped by longer kettle life and reduced lead losses, a further improvement in life being attainable by making the tops corrugated. The authors also make the following suggestions: kettles should be cast bottom up from steel at a good heat which has been deoxidised

Card 2/3

SOV/136-58-11-6/21

Investigation of the Quality of Lead-Refining Kettle Metal  
by 4-5 kg of ferrotitanium per tonne of steel with  
the minimum of aluminium. There are 6 figures.

ASSOCIATION: Zavod im. Frunze (Plant imeni Frunze)

Card 3/3

SOV/133-59-1-22/23

AUTHORS: Rogach, A.P., Tuzhikova, A.P. and Sklyarenko, D.V.

TITLE: The Influence of Annealing on Modified Ingot Moulds  
(Vliyaniye otzhiga na modifitsirovannyye izlozhnitsy)

PERIODICAL: 'Stal', 1959, Nr 1, pp 92 - 93 (USSR)

ABSTRACT: In order to increase the durability of ingot moulds made from iron modified with 45% ferrosilicon, their annealing was tested. It was found that by annealing at 500-850 °C, a substantial decrease in casting stresses, decrease in hardness and a substantial modification in the microstructure are obtained. As a result longitudinal cracks in annealed moulds appear only after 140-170 castings instead of after 50-60 castings. As longitudinal cracks may appear in annealed moulds after 100-110 castings, their annealing is recommended. In this way, the durability of moulds can be increased 2.5 times. Chemical compositions of the cast iron used for the experimental moulds are given in the text. The change in the microstructure of metal on annealing is shown in Figures 1 and 2. There are 2 figures.

ASSOCIATION: Konstantinovskiy zavod im. Frunze (Konstantinovka Works imeni Frunze)  
Card1/1

SOROKIN, V.A., doktor tekhn. nauk; IVANOV, A.I., kand. tekhn. nauk;  
ROGACH, A.P.

Preparation of manganese coke and its use in making converter cast iron. Met. i gornorud. prom. no.4:32-33  
Jl-Ag '63. (MIRA 16:11)

1. Donetskiy politekhnicheskiy institut.

ROGACH, A. P.

✓ Use of High-Alumina Bricks in Copper Stoves. A. I. Kulik,  
A. P. Rogach, L. D. Salganik, T. L. Papin and V. V. Ostanin  
[*E4*] (USSR, 1959, (1), 682-685). [In Russian]. Increased life and  
working temperature of copper stove bricks are obtained by  
increasing their alumina content. 48% Al<sub>2</sub>O<sub>3</sub> is suggested as a  
technical economic optimum. - S. K.

PM fm (W)

ROGACH, A. P.

18  
5  
4E2C

Determination of the Weight of Liquid Steel in the Ladle during Casting. A. P. Rogach, P. K. Turikova and A. S. Romanenko. (Metallurgy, 1958, (2), 34-39). [In Russian]. The apparatus described consists of two steel rods placed between the two layers of lining of the ladle, connected by wires to an accumulator coupled to a galvanometer. When liquid metal is present between the ends of the two rods the circuit is closed. This allows the measurement of the quantity of liquid metal left in the ladle during casting. —S. I. T.

*P. Gray*

Rogach, A. P.

12580 Use of High-Alumina Brick in Hot-Blast Stoves.

A. I. Kulik, A. P. Rogach, L. D. Salganik, T. I. Papin, and  
V. V. Ostanin. Henry Bratcher Translation No. 3867, 6 p.  
(From *Stal*, v. 16, no. 7, 1956, p. 582-585.) Henry Bratcher,  
Akadema, Calif.

Melle ✓ Comparative behavior of chrome-magnesite brick and silica  
brick when exposed to top gas having an above-normal dust  
content.

ROGACH, A.P.

✓ Protection of Cooled Parts of Open-Hearth Furnaces by an  
Electrolytic Polishing Method. A. P. Kogut, A. N. Romanenko,  
and M. V. Argin. ("Stal", 1956, (8), 748-752). [In Russian].  
A method, tested in the laboratory and on a working O.H.  
furnace, is described in which water-cooled metal surfaces are  
protected from corrosion and scaling by electrolytic polishing.  
The metal surface is made the anode, the cooling water being  
the electrolyte, and a current is passed at 0.002-0.003  
amp/sq. dm. (for medium and very hard water). During the  
tests this technique reduced the thickness of the deposit of  
calcium and magnesium salts to 1/3-1/4 of the normal value.  
The current consumed for the protection of all the water  
cooled parts of a furnace is 2-3 kWh per day. — S. K.

3

of

Rogach, A.P.

✓ Protection of water-cooled parts of open-hearth furnaces  
by electropolishing. A. P. Rogach, A. S. Ronnanenko, and  
A. M. Kurgan (Metall Plant, Kerchastrovka). Sml' 15,  
748-52 (1955). Deposition of boiler scale was reduced in  
cooling pipes by applying to it a d.c. of 0.002-0.003 amp./  
sq. cm., and by using river water for cooling. The pipes  
were made anode with stainless-steel bars as cathodes. The  
useful life of doors and door frames was increased several  
times. J. D. Gat

MC

(2)

of

ROGACH, A.P., inzhener; TYURIKOVA, P.K., inzhener; ROMANENKO, A.S., inzhener.

Determination of the weight of liquid steel in the ladle during pouring.  
(MIRA 9:9)  
Metallurg no.2:38-39 F '56.

1.TsZL Konstantinovskogo metallurgicheskogo zavoda imeni Frunze.  
(Konstantinovka--Smelting) (Liquid metals)

KULIK, A.I., inzhener; ROGACH, A.P., inzhener; SALGANIK, L.D., inzhener;  
PANIN, T.I., inzhener; OSTANIN, V.V., inzhener.

The use of high-alumina bricks in air preheaters. Stal' 16 no.  
(MLRA 9:9)  
7:582-585 J1 '56.

1. Chasov-Yarskiy ogneupernyy i Kenstantinevskiy metallurgicheskiy  
zavod.  
(Firebrick) (Heat regenerators)

Rogach, A.P.

3

642. PROTECTION OF WATER-COOLED PARTS OF OPEN HEARTH FURNACES BY ELECTRO-POLISHING. Rogach, A.P., Romanenko, A.S. and Marglin, A.M. "Stal" (Metall, Moscow), 1955, vol. 15, 748-752; abstr. in Chem. Abstr., 1956, vol. 50, 23863. Deposition of boiler scale was reduced in cooling pipes by applying to it a direct current of 0.002-0.003 ampere/sq.cm and by using river water for cooling. The pipes were made anode with stainless steel bars as cathodes. The useful life of doors and door frames was increased several times. *Zuel*

ROGACH,A.P.

ROGACH,A.P.; ROMANENKO,A.S.; MARGIN,A.M.

Protecting open-hearth furnace cooling parts by the method of  
electric polishing. Stal' 15 no.8:748-752 Ag'55. (MLRA 8:11)

1. Konstantinovskiy metallurgicheskiy zavod  
(Polishing. Electrolytic) (Open-hearth furnaces)

ROGACH, Lidiya Trofimovna; GUSLYAYEV, A.V., red.; GOROKHOVA, S.S.,  
tekhn. red.

[Reader on machine tools in English] Khrestomatiia po  
stankam; na angliiskom iazyke. Moskva, Gos.izd-vo  
"Vysshiaia shkola," 1963. 111 p. (MIRA 17:2)

BUTKO, Stepan Danilovich, prof.; GURIN, Nikolay Illarionovich;  
ROGACHENKO, Sergey Nikitovich, dots.; TARTILIM, Mark  
Yakovlevich. Prinimal uchastiye KHRISTICH, O.G., dots.;  
RYABENKO, A.I., red.; YEROSHENKO, T.G., tekhn. red.

[Accounting on collective farms] Bukhgalterskii uchet v kol-  
khozakh. Pod red. S.D. Butko. Kiev, Gossekhizdat USSR,  
1962. 417 p. (MIRA 16:2)

(Collective farms--Accounting)

PA 196T83

ROGACHENKO, V. F.

USA/Mathematics - Book Review Nov/Dec 51

"Criticism and Bibliography: Review of Published Mathematical Collections 'Historico-Mathematical Investigations.'"

"Uspekhi Matemat. Nauk" Vol VI, No 6 (46),  
pp 193-200

Review by V. F. Rogachenko of books written under the editorship of G. F. Rybin and A. P. Yushkevich. - No I issued 1948, with 384 pages, 14 rubles; No II, 1949, 508 pages, 18 rubles; No III, 1950, 508 pages, 18 rubles. Published by Gostekhizdat, Moscow/Leningrad. 196T83

USA/Mathematics - Book Review Nov/Dec 51  
(Contd)

Subject books are **symposia** of articles by various authors from the historical viewpoint (from 1755 to present). Reviewer considers that the number of copies (4,000) is insufficient.

196T83

ROGACHENKO, V.F.

"Complete works of N.I. Lobachevskii." Reviewed by V.F. Rogachenko.  
Vop.elem.i vys.mat. no.1:87-91 '52. (MLRA 10:7)  
(Lobachevskii, Nikolai Ivanovich, 1792-1856)

ROGACHENKO, V.F.

"Material for the Biography of N.I.Lobachevskii" by L.B.Modzalevskii.

Reviewed by V.F. Rogachenko. Vop.elem.1 vys.mat. no.1:91-92 '52.

(MIRA 10:?)

(Lobachevskii, Nikolai Ivanovich, 1702-1856)

ROGACHENKO V.F.

"Elements" by Euclid, translated from Greek by D.D.Mordukhai-Boltovskii;  
"Foundations of Geometry" by D.Hilbert, translated from German by  
P.K.Rashevskii. Reviewed by V.P.Rogachenko. Vop.elem.i vys.mat.  
no.1:92-95 '52. (MIR 10:7)  
(Geometry)

ROGACHENKO, V.F., starshiy prepodavatel'.

N.I. Lobachevskii's discovery of the method of approximate  
solution of numerical algebraic equations. Dop.ta pov.  
L'viv.un. no.3 pt.2:40-41 '52. (MLRA 9:11)

(Polynomials) (Lobachevskii, N.I.)

ROGACHENKO, V.F.

N.I.Lobachevski's discovery of the method of approximation for solving numerical algebraic equations. Ist.-mat. issl. no.6:477-494 '53.  
(MLRA 7:9)

(Approximate computation) (Equations--Numerical solutions)

ROGACHENKO, V.F.

The possibility of solving second degree construction problems in  
Lobachevskii's plane by a compass and hypercompass. Nauk.zap.L'viv.  
un. 22:72-83 '53. (MLRA 10:5)  
(Geometrical drawing)

KO-4 RICHENKO, V. F.

Mathematical Reviews  
Vol. 14 No. 10  
Nov. 1953  
Geometry

Rogačenko, V. F. On solvability of problems on construction in the Lobačevskii plane by means of compass and hypocycle or oocycle and hypocycle. Doklady Akad. Nauk SSSR (N.S.) 88, 615-618 (1953). (Russian) Smogorževskii has shown [see Geometric construction in the Lobačevskii plane, Gostehizdat, Moscow-Leningrad, 1951; these Rev. 14, 575] that any construction in the hyperbolic plane feasible by rule and compass, can also be accomplished by the compass and instruments that draw limit circles and equidistant curves. The present article shows that any two of these three instruments suffice.

H. Busseman, (Los Angeles, Calif.).

ROGACHENKO, V. F.

262T61

USSR/Mathematics - Riemannian

21 Jul 53

"Solvability of Second-Degree Construction Problems in the Lobachevskian Plane by Hypercompass or by Compass and Oricompass," K. K. Mokrishchev, Rostov State U im Molotov

DAN SSSR, Vol 91, No 3, pp 453-456

Demonstrates that problems of geometrically constructing second-degree figures in a Lobachevskian plane can be solved with the aid of just one hypercompass, and also with the joint aid of compass and oricompass; thus generalizes the specialized results of A. S. Smogorzhevskiy, Nauk Zap Kiiv's'k Derzh Un-ta (Sci Notes of Kiev State U), 7, 4, 151 (1948), and V. F. Rogachenko, Dan SSSR, 88, No 4 (1953). Cites books (1951) of V. F. Kagan and N. M. Nesterovich on geometric constructions. Presented by Acad A. N. Kolmogorov 21 May 53.

ROKACHENKO, V. N.

"Survey of the Development of the Theory of Geometric Constructions in Lobachevskian Space. On Geometric Constructions in Lobachevskian Space Without Using a Straightedge." Cand Phys-Math Sci, L'vov State U imeni Ivan Franko, Min Higher Education USSR, L'vov, 1954. (KL, No 11, Mar 55)

SO: Sum. No. 670, 29 Sep 55--Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

ROGACHENKO, V.F.  
USSR/Mathematics - Bibliography

FD-1185

Card 1/1      Pub. 118-26/30

Author : Rogachenko, V. F. (reviewer)

Title : Review of the book 'Istoriko-matematicheskiye issledovaniya'  
(Historico-mathematical investigations), G. F. Rybkin and A. P.  
Yushkevich (editors), No IV, 1951, 512 pp, 17.90 rubles; No V, 1952,  
472 pp, 13.75 rubles. State Technical Press, Moscow-Leningrad

Periodical : Usp. mat. nauk, 9, No 3(61), 267-273, Jul-Sep 1954

Abstract : In Part IV: 4 articles on M. V. Ostrogradskiy, by Ye. Ya. Remez,  
B. V. Gnedenko, I. A. Maron, I. Ya. Depman; 3 articles on N. I.  
Lobachevskiy, by S. A. Yanovskaya, B. L. Laptev, V. V. Morozov; 200-  
page article "Algebra in Russia of 1800-1900," by A. K. Sushkevich;  
"Mathematics of Central Asia 800-1400," by A. P. Yushkevich; "Works  
of Nasir el-Din Tusi," by B. A. Rozenfel'd. In Part V: Mainly ar-  
ticles on 3 outstanding 18th Century Russian mathematicians T. F.  
Osipovskiy, K. M. Peterson, A. V. Letnikov, by E. Ya. Bakhmutskaya,  
V. Ye. Prudnikov, R. Ya. Shostakov; the last 3 articles are on his-  
tory of mathematics, mainly Russian, by G. M. Gikhtengol'ts, I. G.  
Spasskiy, V. V. Gussov, Part IV in 3000 copies; V, 4000. Favorably  
reviewed.

Institution :

Submitted :

ROGACHENKO, V.F.

Fundamental stages in the development of geometric constructions  
in a Lobachevskii plane. Dop. ta pov. L'viv. un. no. 5 pt. 2:90-93  
'55. (MIRA 9:10)

(Geometry, Non-Euclidean)

ROGACHENKO, V.F. [Rohachenko, V.F.]

Geometrical constructions in non-Euclidean spaces.  
Visnyk L'viv. un. Ser. mekh.-mat, no.1:34-45 '65.

(MIRA 18:12)

ROGACHEV, A., kapitan

Our radio training installation. Voen.sviaz. 16 no.4:41-42 Ap '58.  
(MIRA 11:4)

(Radiotelegraph--Study and teaching)

L 20278-65 EAT(1)/ENG(k)/T/ENIA(h) Pz-6/Peb IJP(c)/AEDC(a)/RAEM(a) AT

ACCESSION NR: AP5000694

S/0181/64/006/012/3742/3745

22  
11  
B

AUTHOR: Rogachev, A. A.; Ryvkin, S. M.

TITLE: Effect of screening on the recombination cross sections in the presence of a Coulomb barrier

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3742-3745

TOPIC TAGS: recombination cross section; tunnel effect, Coulomb repulsion force, screening effect

ABSTRACT: V. L. Bonch-Bruevich has shown (FTT, Sb.II, 182, 1959) that, at a sufficiently low temperature, carriers overcome a repulsive Coulomb barrier mainly by the tunnel effect. The present authors point out that, at a distance  $r \approx 10^{-5} - 10^{-6}$  cm from a repulsive center, screening must be allowed for. Two cases are considered: (1) a sample with  $n$  ( $\text{cm}^{-3}$ ) completely ionized donors but with a much lower concentration of the compensating impurity (screening only due to the donor charge); (2) a fully compensated sample (screening due to all impurity ions, assuming them to be uniformly distributed and neglecting the influence of carriers). As in Bonch-Bruevich's paper, the result is presented in the

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ACCESSION NR: AP5000694

form of a factor C by which the recombination cross section calculated for  $Z = 0$  ( $Z$  is the impurity charge) must be multiplied in order to allow for the effect of the repulsive field:

$$C \sim e^{-\left(\frac{T_0}{T}\right)^{1/3} \cdot \frac{R^3}{kT}},$$

where  $T_0 = \frac{27\pi^2 e^4 Z^2 h^3 m}{2a^3 k}$ .

For case (1)

$$E' = \frac{\left(Z + \frac{1}{2}\right)e^2}{\epsilon r_s}.$$

For case (2)

$$E' = \frac{Ze^2}{\epsilon r_s}.$$

Here  $T$  is the temperature,  $\epsilon$  is the permittivity,  $r_{sc} = (3Z/4\pi n)^{1/3}$ , and the other symbols are standard. The first factor in the equation for C is the

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ACCESSION NR: AP5000694

expression obtained by Bonch-Bruevich for C on the assumption that the potential is of the Coulomb type; the second factor allows for the screening. The screening not only increases C, but also weakens the dependence of C on T. In the strong-screening region, where the above equation for C is inapplicable, the dependence of the cross section on temperature ceases to be exponential and is governed only by factors not allowed for in the calculations. The influence of screening is particularly strong at low temperatures: when the carrier density is changed from  $10^{12}$  to  $10^{16} \text{ cm}^{-3}$ , the cross section at T = 10K increases by four orders of magnitude. Orig. art. has: 1 figure and 5 formulas.

ASSOCIATION: Fiziko-tehnicheskiy institut im. A. M. Ioffe, AN SSSR, Leningrad  
(Physicotechnical Institute AN SSSR)

SUBMITTED: 13May64

ENCL: 00

SUB CODE: SS NR REF SOV: 001

OTHER: 001

Card 3/3

22064

S/181/61/003/004/030/030  
B102/B209

24,7700 (1035,1143,1469)

AUTHORS: Dobrego, V. P., Rogachev, A. A., Ryvkin, S. M., and Yaroshetskiy, I. D.

TITLE: Low-temperature breakdown in germanium in connection with radiative defects

PERIODICAL: Fizika tverdogo tela, v. 3, no. 4, 1961, 1298-1300

TEXT: In germanium doped with elements of the third or fifth group, the current may suddenly rise at helium temperatures when the field applied exceeds a certain critical value. This effect is known as low-temperature breakdown. The following is the mechanism of this effect: At these temperatures, the majority of carriers causing impurity conduction is localized at impurity centers, and resistivity is high. When a field is applied, the free carriers are accelerated and, at a certain field strength, their energy is high enough to cause impact ionization of the filled impurity centers. The low-temperature breakdown in Ge or Si due to donor or acceptor impurities has been investigated repeatedly. The present paper is a report on studies of this effect which is caused by radiative defects; such defects have been

Card 1/4

Low-temperature ...

22064  
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produced by irradiating the semiconductor with gamma quanta or fast neutrons. First, the energy levels of the radiative defects are discussed; Fig. 1 shows the level scheme for gamma-irradiated (a) and fast-neutron irradiated (b) germanium. The two shallow levels of the radiative defects are only 0.02 and 0.01 ev, respectively, off the valency band; at helium temperatures, they are occupied by electrons only partly or not at all. In neutron-irradiated Ge specimens, the 0.01-ev level was found to be free from electrons at helium temperatures. In chemically impure specimens, the presence of donor centers offered a certain compensation, and the level was partly occupied by electrons. Volt-ampere characteristics of such specimens were taken by means of a "characteriograph." They were analogous to those obtained by B. Vul, E. Zavaritskaya, and V. Chuyenkov for the low-temperature breakdown due to impurity centers. Altogether, three specimens were examined: gamma-irradiated 1-j had a concentration of shallow radiation levels of  $N_a = 7 \cdot 10^{13} \text{ cm}^{-3}$  and a hole concentration on them of  $p_a = 1 \cdot 10^{13} \text{ cm}^{-3}$ ; 1-n and 2-n were n-type specimens having a resistivity of 2 ohm·cm; after neutron irradiation they were p-type. n-type and p-type specimens having a resistivity of 3 and 12 ohm·cm, respectively, were measured for comparison. The

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values of the critical field strength (1) and of the breakdown field strength (2) for these two specimens are listed in columns (3) and (4) of the table. The authors thank T. V. Mashovets and N. A. Vitovskiy for having prepared the gamma-irradiated specimens, as well as S. R. Novikov and R. F. Konoplevaya for the neutron-irradiated specimens. There are 2 figures, 1 table, and 11 references: 5 Soviet-bloc and 6 non-Soviet-bloc. The most recent reference to an English-language publication reads as follows:  
McWhorter, R. Rediker, Proc. IRE, 47, 1207, 1959.

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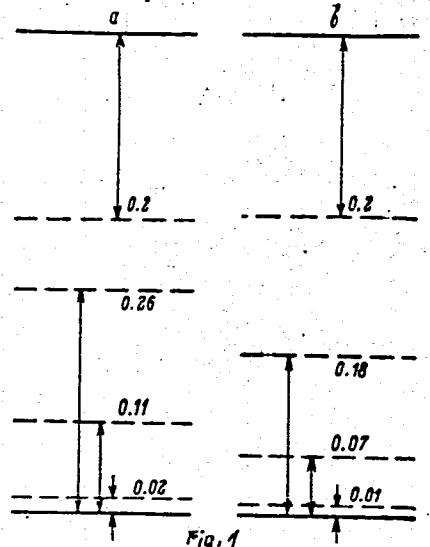
SUBMITTED: December 20, 1960

	1-n	1-n	2-n	КОНТРОЛ' ЕМК. П-ЧНК (3)	КОНТРОЛ' ЕМК. П-ЧНК (4)
① $E_{sp}$ , v/cm .	14	110	12	9.5	7.5
② $E_a$ , v/cm .	44	110	15	10.2	9

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AUTHORS: Paritskiy, L. G., Rogachev, A. A., and Ryvkin, S. M.

TITLE: Kinetics of photocells with an "external" photoelectric effect from a metal into a semiconductor

PERIODICAL: Fizika tverdogo tela, v. 3, no. 5, 1961, 1613-1616

TEXT: The paper by R. Williams and R. Bube (Appl. Phys., 36, No. 6, 1960) gives a series of proofs for the existence of an "external" photoelectric effect taking place from a metal into a semiconductor in photocells consisting of a Cu-coated low-resistance CdS crystal. Earlier measurements made by the author showed a low inertia in such photocells. The studies of the kinetics of the photocells are similar to those of photocells with n-p junctions which were dealt with in Ref. 3 (S. M. Ryvkin, ZhTF, XXVII, 8, 1676, 1957) and Ref. 4 (S. M. Ryvkin, N. B. Strokan, L. L. Makovskiy, ZhTF, XXVIII, 9, 1958) for, actually, a metal connected with an n-type semiconductor replaces a p-type semiconductor. In this case those electrons which have absorbed a photon and whose energy exceeds the barrier height play the part of the unbalanced minority carriers in the metal. On the same

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